Research on the optimization of marketing strategy of Hema Fresh

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Abstract: Against the backdrop of the booming new retail model, Hema Fresh, a paragon in the industry, has drawn significant attention. This thesis delves into the purchasing behavior of Hema Fresh's consumers based on the Theory of Planned Behavior (TPB). The literature research method is employed to systematically review the TPB theory and its applications in the retail sector, laying a solid theoretical foundation for the study. The case study method is utilized to analyze Hema Fresh's practices in consumer experience, marketing, and online-offline integration. The qualitative analysis method is used to explain the formation mechanism of consumers' purchasing behavior, and the questionnaire survey method is adopted to collect data and accurately identify the key factors influencing purchasing behavior. The research reveals that Hema Fresh cultivates positive consumer attitudes through high-quality products and services and innovative consumption experiences. This study offers valuable business management suggestions for Hema Fresh and other new retail enterprises, facilitating enterprises to optimize strategies and enhance competitiveness. Meanwhile, it points out the limitations of the research in terms of sample selection scope and variable measurement accuracy, providing directions for subsequent research to further improve the understanding and research of consumer behavior in the new retail model.

Keywords: Theory of Planned Behavior; Hema Fresh; New Retail; Consumer Purchasing Behavior; Case Study

1. Introduction

In today's era of deep integration between digitalization and globalization, the business environment is undergoing unprecedented changes. The rapid advancement of technology, particularly the widespread application of emerging technologies such as artificial intelligence, big data, and cloud computing, has not only reshaped market competition but also transformed consumer behavior and preferences. The acceleration of globalization has blurred market boundaries, presenting both new international market opportunities and challenges from global competitors.

In this context, the importance of enterprise operation and management, as a core component for achieving sustainable development, has become increasingly evident. Effective operation and management can help companies optimize resource allocation, enhance production efficiency, reduce costs, and improve product and service quality, thereby enhancing market competitiveness and maximizing corporate value. However, many companies still face numerous complex and challenging issues in their operation and management. Internal management deficiencies, such as an unreasonable organizational structure, cumbersome processes, and poor communication, severely limit operational efficiency and innovation. Additionally, the uncertainty of the external environment, including economic fluctuations, policy changes, and rapid technological advancements, poses significant risks and challenges to strategic decision-making and operational planning.

This article aims to conduct a thorough analysis of the current state of enterprise operations management, accurately diagnose existing issues, and propose practical optimization strategies. Theoretical research on enterprise operations management can further enrich and refine the

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theoretical framework, providing new perspectives and ideas for future studies. By exploring new challenges and issues in enterprise operations management, we can promote theoretical innovation and development, making it more adaptable to the ever-changing market environment. In practical terms, the findings of this study can provide managers with valuable decision-making support, helping them address operational challenges, enhance management efficiency, boost market competitiveness, and achieve sustainable development. By optimizing operations management, companies can improve resource utilization, reduce costs, and enhance product and service quality, thereby better meeting consumer needs and increasing customer satisfaction and loyalty. Effective operations management can also drive corporate innovation, ensuring a competitive edge in the market.

The core objective of this study is to conduct a comprehensive and in-depth investigation on the purchasing behavior of Hema Fresh consumers based on planned behavior theory, accurately analyze the key factors that affect consumers' purchasing intention and actual purchasing behavior, and on this basis, provide highly targeted and operational management suggestions for new retail enterprises.

This study employs a variety of research methods to ensure the scientific rigor, comprehensiveness, and depth of the research. Case studies are used to select representative enterprises as research subjects, conducting in-depth investigations into their operational management practices. Through detailed analysis of specific cases, the study summarizes successful experiences and lessons learned from failures, providing a rich practical foundation for future research. The SWOT analysis method is used to systematically analyze the internal strengths and weaknesses, as well as external opportunities and threats of the enterprises, clarifying their competitive position in the market and providing strong support for formulating scientific and reasonable development strategies. The PEST analysis method is used to analyze the impact of macro-environmental factors such as politics, economy, society, and technology on enterprise operations, helping enterprises better understand external environmental changes and adjust their strategic direction in a timely manner.

A structured questionnaire is used as the primary data collection tool, designed to optimize the omni-channel experience at Hema Fresh. The questionnaire is divided into four main sections: the basic information section covers demographic details such as age, gender, income, and usage frequency; the consumption behavior section uses multiple-choice and single-choice questions to systematically analyze consumer channel preferences, average order value distribution, selection motivations, and price sensitivity; the omni-channel experience perception section employs a 1-5 Likert scale to evaluate the online interaction (such as APP smoothness, information completeness, and promotional appeal), offline environment (store ambiance, processing services, and staff attitude), logistics performance (timeliness, packaging quality, and return and exchange convenience), and cross-channel coordination (information synchronization, benefit universality, and data consistency); the satisfaction and loyalty section uses rating scales and open-ended questions to quantitatively assess user satisfaction, willingness to continue using the service, and the intention to recommend.

The questionnaire design is closely aligned with the characteristics of the fresh e-commerce industry, focusing on consumption features such as high frequency, low average transaction value, and strong timeliness. It aims to identify consumer pain points across all touchpoints. For example, it includes a single-choice question on 'price consistency between online and offline channels' to identify channel coordination issues, and uses a '3-kilometer delivery time compliance rate' scale to quantify logistics service levels. The questionnaire is distributed through an integrated online and offline approach, with online channels including pop-up windows on the Hema APP, member communities, and social media, and offline channels covering store cash registers and experience zones to intercept visitors. This ensures that the sample covers different age groups, income levels, and urban areas. The implementation of the questionnaire survey provides empirical support for research, collecting primary data through a standardized

questionnaire tool system, effectively quantifying the current state of omnichannel experiences, and laying the foundation for building an 'experience-data-supply chain' optimization model.

In the construction of the research framework, this study follows a logical closed loop of 'current situation analysis-problem diagnosis-strategy optimization.' During the current situation analysis phase, we collect and organize materials related to the company's operations management to gain a comprehensive understanding of its current state, including organizational structure, business processes, resource allocation, and performance. Using data analysis and case studies, we conduct an in-depth analysis of the current state of the company's operations management, laying a solid foundation for subsequent research. In the problem diagnosis phase, based on the results of the current situation analysis, we use various analytical tools and methods to thoroughly identify issues in the company's operations management and analyze their causes. We analyze from multiple dimensions, such as internal management and external environment, to pinpoint the root causes of the problems, providing a basis for formulating targeted optimization strategies. In the strategy optimization phase, based on the results of the problem diagnosis and in line with the company's strategic goals and development needs, we propose practical and feasible optimization strategies for operations management. We propose specific optimization measures in areas such as optimizing organizational structure, reengineering business processes, adjusting resource allocation, and enhancing risk management, and predict and evaluate the implementation effects of these strategies to ensure their effectiveness and feasibility.

2. Theoretical basis and literature review

This study adopts SWOT analysis and PEST analysis to comprehensively analyze the operation management of fresh e-commerce industry, so as to provide a solid theoretical basis for subsequent strategy formulation.

SWOT analysis is a situational analysis based on the internal and external competitive environment and competition conditions. Through the comprehensive analysis of the advantages (Strengths), disadvantages (Weaknesses), opportunities (Opportunities) and threats (Threats) formed by the internal and external environment of the enterprise, a series of decision-making conclusions are drawn to provide a basis for the enterprise to formulate strategies.

In terms of advantages, fresh e-commerce platforms leverage internet technology to overcome the geographical limitations of traditional retail, reaching a broader consumer base and expanding market reach. By utilizing advanced technologies such as big data and AI, these platforms can deeply analyze consumer purchasing behaviors, preferences, and needs, enabling precise marketing that enhances marketing effectiveness and customer satisfaction. Moreover, by optimizing supply chain management, fresh e-commerce can reduce intermediate steps, lower procurement and operational costs, and boost profitability. However, fresh products' unique characteristics make them highly dependent on cold chain logistics, which is currently underdeveloped, leading to high distribution costs and limiting the scale and reach of fresh e-commerce. Additionally, the low standardization of fresh products makes it difficult to ensure quality, causing consumer concerns about product quality, which affects user experience and loyalty.

From an opportunity perspective, as living standards and consumption concepts evolve, consumers are placing higher demands on the quality and convenience of fresh produce. Fresh e-commerce platforms are well-suited to meet these needs, offering significant market potential. The government has introduced a series of policies to support the growth of e-commerce, creating a favorable policy environment for fresh e-commerce. Continuous technological advancements, particularly in cold chain and logistics distribution technologies, have made it possible for fresh e-commerce to address logistics challenges. However, the industry also faces numerous threats. The market is highly competitive, with many e-commerce platforms and traditional retail companies entering the fresh produce sector, leading to intense competition for market share and significant pressure on businesses. Consumers are highly concerned about the quality and safety

of fresh produce, and any quality or safety issues can severely damage a company's reputation and image. The rapid growth of the fresh e-commerce industry has also brought new challenges, such as environmental protection and data security, which require serious attention and resolution by companies.

PEST analysis is an analysis of the macro environment, mainly from the four major categories of political (Political), economic (Economic), social (Social) and technological (Technological) external environmental factors that affect enterprises, so as to help enterprises understand the changes in the external environment, grasp market opportunities and avoid potential risks.

In the political environment, the government places a high emphasis on agricultural development and food safety, implementing a series of policies to support the growth of fresh e-commerce, including tax incentives, financial subsidies, and industrial support, creating a favorable policy environment for fresh e-commerce. The government has also intensified its supervision of the quality and safety of fresh products, establishing stringent quality standards and regulatory systems. This has raised the bar for fresh e-commerce companies, encouraging them to enhance quality management and ensure product safety. In the economic environment, with China's economy steadily growing, residents' income levels have risen, and their purchasing power has increased, leading to a higher demand for the quality and variety of fresh products, thus providing a vast market space for the development of fresh e-commerce. The widespread adoption of Internet technology and the rapid advancement of e-commerce have laid a solid economic foundation for the growth of fresh e-commerce.

In terms of the social environment, consumers are increasingly shifting towards healthier, more convenient, and personalized consumption habits, with higher demands for the quality, freshness, and delivery speed of fresh produce. The rapid urbanization and accelerated pace of life have led to a growing preference for online shopping among consumers, creating a favorable social environment for the growth of fresh e-commerce. In the technological domain, advanced technologies such as big data, artificial intelligence, the Internet of Things (IoT), and blockchain are being increasingly utilized in the fresh e-commerce sector, providing robust technical support for its development. Through big data analysis, companies can gain deep insights into consumer needs and behaviors, enabling precise marketing and personalized recommendations. With the help of AI technology, companies can optimize their supply chain management and enhance operational efficiency. The IoT enables companies to monitor and trace fresh produce throughout the supply chain, ensuring product quality and safety. The application of blockchain technology can boost consumer trust in product quality and enhance corporate credibility.

Fresh e-commerce, as a significant segment of the e-commerce industry, has unique characteristics. Fresh products, which are essential for daily life, are frequently purchased by consumers, ensuring a stable market demand. Whether for everyday meals or family gatherings, fresh products are indispensable, making the fresh e-commerce sector have a large consumer base and a steady market demand. Fresh products have a short shelf life and are prone to spoilage, requiring stringent storage and transportation conditions. Throughout the supply chain from origin to consumer, it is crucial to strictly control environmental factors such as temperature and humidity to ensure the freshness and quality of the products. To ensure product safety and quality, fresh e-commerce platforms need to establish a comprehensive cold chain logistics system.

The standardization of fresh produce is relatively low, with significant differences in appearance, taste, and nutritional content among products from different origins and varieties, making it challenging to establish a unified quality standard. This poses challenges for the procurement, sales, and quality control of fresh produce e-commerce, and also complicates consumers' product selection. Fresh produce e-commerce platforms sell products online, where consumers cannot directly handle or select items; they can only rely on images and text descriptions to understand product details. Therefore, these platforms must provide accurate and detailed product information along with high-quality customer service to boost consumer

confidence and satisfaction. Online sales also enable fresh produce e-commerce to collect a large amount of consumer data, which is used for precise marketing and personalized services through data analysis.

The fresh food e-commerce market is highly competitive. In addition to numerous emerging fresh food e-commerce platforms, traditional e-commerce giants and offline retail companies are also entering the fresh food sector, leading to intense competition for market share. To succeed in this competitive landscape, companies must continuously enhance their core competitiveness by optimizing supply chain management, improving product quality, reducing costs, and enhancing service levels. The development of fresh food e-commerce is closely linked with agriculture, logistics, information technology, and other sectors, forming a comprehensive industrial chain. This growth not only boosts the upstream agricultural sector, promoting the sales of agricultural products and increasing farmers' income, but also drives innovation and upgrades in related industries such as logistics and information technology, fostering coordinated industrial development.

As the fresh e-commerce market size surpasses 1.8 trillion yuan (iResearch, 2025), industry competition has shifted from price wars to a focus on user experience and supply chain efficiency. Current research generally indicates that fresh retail is characterized by high-frequency consumption, low average transaction values, and strong time sensitivity (Yang Pan, 2024). However, it also faces structural challenges such as high cold chain costs, significant loss rates, and lengthy supply chains (Liu Lili, 2023). Hema Fresh, a leader in new retail, has achieved 3-kilometer, 30-minute delivery through its 'store-warehouse integration' model (Yang Zhenhui, 2024). However, user surveys reveal that 32% of consumers are dissatisfied with the disjointed experience between online and offline shopping (Tang Junyue et al., 2025).

Theoretically, the omnichannel experience theory (Verhoef et al., 2021) emphasizes seamless integration between different channels, while the SICAS model (Yang Pan, 2024) outlines a comprehensive consumer journey from perception to action. Most existing research focuses on analyzing user behavior in traditional e-commerce (Ni Wei, 2024), but there is still a gap in integrating the three dimensions of 'experience value, emotional value, and social value' in the fresh food context (Bao Zhiqi, 2025).

Hema has developed a multi-touchpoint consumption scenario through its APP, mini-program, and physical stores (Huang Weixin et al., 2025). However, the integration of cross-channel data is less than 40%, leading to delays in the synchronization of promotional information (Lei Yingfan, 2022). Current research indicates that live-streaming sales account for 18% of GMV (Yu Jia et al., 2023), but the content is highly homogeneous, failing to fully leverage the situational communication advantages of social media (such as how Xiaohongshu users boost conversion rates through real-life scenario sharing).

Hema's' forward warehouse + self-operated delivery' model has achieved an inventory turnover rate of 22 times per year (Liu Yi, 2022), yet the cold chain loss rate remains as high as 8% (Lin Xinghong et al., 2022). Research indicates that C2M reverse customization (Xie Chaoyang et al., 2022) and the optimization of smart logistics networks (Zhang Shuaifei, 2023) can reduce fulfillment costs by 15%-20%, but this requires balancing large-scale operations with personalized needs.

Research has shown that the renewal rate for Hema X members is 68%, while the repurchase rate for non-members is only 35% (Yin Zhenyu et al., 2023). The conversion rate of social viral mechanisms, such as group buying activities, is only 12% (Wu Cui et al., 2022), indicating a lack of user engagement. Compared to Gujia Home's success in breaking the billion-yuan sales mark for a single product through' scenario-based recommendations' on Xiaohongshu (Summary 2), Hema has room for improvement in designing user co-creation mechanisms.

Most existing literature focuses on the breadth of channel coverage, but there is insufficient research on the collaborative mechanism of 'intelligent interaction, data integration, and

consistent experience' (Zhang Shuang, 2023). Future research should integrate LSTM algorithms to predict user needs (Yu Junqi et al., 2023) and draw on the private domain rebate strategy of 213 Marketplaces (Abstract 6) to create a closed loop of 'consumption, rebate, and repurchase.'

To address the issues of short SKUs and high loss rates in the fresh food industry (Ji Xiangyu, 2023), it is necessary to introduce blockchain traceability technology (Yang Tianyu et al., 2020) and dynamic pricing models (Xu Xinyuan et al., 2023) to achieve demand-driven precise supply. Drawing on Ni Wei's (2024) analysis of the heterogeneity in social e-commerce recommendation behaviors, Hema can develop a' user proposal system '(such as the' Hema Lab') and establish a UGC grading reward mechanism (for example, annual income for high-quality content creators reaching 100,000 yuan) to enhance user engagement (Yang Chenying, 2024).

3. Environmental analysis and existing problems

This section may be divided by subheadings. It should provide a concise and precise description of the experimental results, their interpretation, as well as the experimental conclusions that can be drawn.

3.1 Macro environment (PEST)

3.1.1 Policy environment: dual-wheel drive of cold chain infrastructure and food safety

At the national level, under the 'dual circulation' strategic framework, the security of the fresh food supply chain has been elevated to a national strategic priority. The 14th Five-Year Plan for Cold Chain Logistics Development clearly states that by 2025, the cold chain logistics market will exceed 1.2 trillion yuan, with a total cold storage capacity reaching 140 million cubic meters. In 2022, the central government added 20 billion yuan in special bonds to support the construction of cold chain logistics hubs, focusing on multi-temperature layer warehouses and the purchase of new energy refrigerated vehicles. Leveraging this opportunity, Hema established regional centers in transportation hubs such as Zhengzhou and Xi 'an, adopting a' central kitchen + regional distribution' model, which reduced the turnover time of fresh produce from 7 days to 4.2 days.

Local governments have introduced a 'flexible term land transfer for logistics' policy, allowing Hema to secure 500 acres of storage land in Yangluo Port, Wuhan, with land costs reduced by 35% compared to the traditional bidding and auction methods. Additionally, the State Taxation Administration has implemented a 50% reduction in property tax for cold chain logistics companies, resulting in a tax reduction of 120 million yuan for Hema in 2024. These policy benefits have directly spurred the upgrade of Hema's cold chain infrastructure: in 2024, Hema constructed 18 new intelligent cold storage facilities and added 500,000 phase change material insulation boxes, reducing the cold chain breakage rate from 12% to 3.2%, meeting the EU cold chain standard (EN 12830:2000).

The tightening of food safety regulations has raised the bar for fresh produce companies. According to the new regulations set by the State Administration for Market Regulation in 2025, fresh produce e-commerce platforms must implement a grading system for suppliers and establish a 'Red-Black List' system. In response to these policies, Hema has introduced a 'one product one code' traceability system, where blockchain technology is fully utilized. Consumers can scan a code to access detailed data on Chilean cherries, from the moment they are picked in the orchard to their final listing on shelves, including 18 key pieces of information such as pesticide residue test reports and temperature curves during transportation.

3.1.2 Economic environment: consumption stratification and sinking market opportunities coexist

According to data from the Chinese Academy of Social Sciences, by 2025, the proportion of food, tobacco, and alcohol in the per capita consumption expenditure of residents nationwide is expected to drop to 28.3%, while the absolute value of fresh food consumption is projected to increase by 19.2%. The consumer market is showing a clear 'K-shaped recovery': high-income

households (with a monthly income over 50,000 yuan) are spending 27% more annually on fresh food, favoring organic ingredients and imported seafood. In contrast, middle-and low-income households (with a monthly income under 15,000 yuan) are more price-conscious, with 42% of their purchases being promotional items.

Hema has introduced a differentiated brand matrix to cater to different consumer segments. The 'Hema X Member Store' for the new middle class offers high-end items such as Japanese wagyu and Alaskan king crab, with an average order value of 268 yuan. In the lower-tier market, 'Hema Outlet' uses a discount model for near-expiry products, achieving an average daily sales of 82,000 yuan per store in 300 third-tier cities. However, in the community group buying sector, Hema faces intense competition from Meituan's Buy Vegetables. In 2024, its gross profit margin for community channels was only 9%, below the industry average of 12%.

The uneven development of regional economies provides Hema with strategic depth. Fresh food consumption in the Yangtze River Delta and Pearl River Delta regions accounts for 58% of the national total, while the growth rate in central and western provinces is 22%. Hema has implemented the 'East Data West Calculation' project by building a regional data center in Guiyang. By leveraging the computing resources in the west, Hema optimizes its demand forecasting models for stores nationwide, increasing the inventory turnover rate between central and western stores to 20 times per year, nearly matching the eastern level.

3.1.3 Social environment: the demand for health and convenience reshapes the consumption scene

According to a survey by the Chinese Nutrition Society, 72% of consumers are willing to pay a premium for 'zero additives' foods, and the organic vegetable market has surpassed 80 billion yuan. Hema's' Ri Ri Xian 'series, through its daily clearance mechanism, maintains a vegetable loss rate below 3%, while balancing cost control and consumer trust. The' Organic Vegetable Traceability Live Streaming' event launched in 2024 attracted over 120 million views and boosted sales of organic products by 45%.

The fast-paced lifestyle has fueled the demand for 'instant retail.' According to iiMedia Research, the proportion of 30-minute delivery orders rose from 18% in 2020 to 52% in 2025. Hema's Ready-to-Cook (3R) pre-prepared dishes saw an annual sales growth of 210%, but faced a conflict between standardization and personalization: user surveys revealed that 28% of consumers found the flavors of the dishes too similar, while 15% suggested adding regional specialties. To address these issues, Hema established a' central kitchen + regional R&D center' system, developing Sichuan-style and Shanghainese-style pre-prepared dishes in Chengdu and Shanghai, respectively, which increased the repurchase rate to 38%.

Demographic changes have brought new opportunities. The seventh national census revealed that 18.7% of the population is aged 60 or older, driving demand for age-friendly renovations. Hema launched a 'large font version APP' to optimize font sizes and user experience, resulting in a 300% increase in monthly active users among senior citizens. To cater to the trend of 'single-person dining,' Hema introduced small-packaged fresh-cut meat and single-serving hot pot sets, leading to a 67% year-on-year increase in sales of these products.

3.1.4 Technical environment: digital reconstruction of supply chain efficiency

The breakthrough in AI algorithms in demand forecasting has significantly enhanced operational efficiency. The LSTM model deployed by Hema achieves an accuracy rate of 89%, enabling it to predict the demand for popular products 72 hours in advance. For instance, during the Spring Festival, the prediction error rate for cherries was only 4.2%, reducing the loss from unsold goods by 18%. Algorithm optimization has also increased the inventory turnover rate to 25 times per year, far exceeding the 8-10 times typical of traditional supermarkets.

IoT technology enables comprehensive intelligent monitoring of the entire supply chain. Hema installs BeiDou positioning and temperature-humidity sensors in its cold chain transport vehicles, which transmit real-time data to the cloud. A digital twin system is used to create a 3D

visualization model of the national logistics network. By 2024, the monitoring coverage for in-transit goods will reach 100%, the automatic alarm response time for abnormal conditions will be reduced to 15 seconds, and the cold chain accident rate will decrease by 65%.

5G and edge computing technology are empowering the digital transformation of stores. The Hema Shanghai Jin Qiao store has launched a '5G smart shelf' pilot, which uses gravity sensors to automatically replenish stock, reducing the out-of-stock rate by 70%. The AR tasting mirror has increased the seafood sales conversion rate by 40%. The intelligent checkout system, utilizing image recognition technology, reduces checkout time to 3 seconds per transaction, cutting queue times by 80% during peak hours.

Technological innovation also brings new challenges. The initial investment in 5G equipment has increased the IT cost per store by 23%. Data privacy regulations require the local storage of user profile data, and the technical standards for cross-border supply chains have led to a 15% increase in the cost of tracing imported goods. Hema has partnered with Huawei to develop edge computing boxes, which offload some data processing to the store level, reducing cloud load by 35%. Additionally, through privacy-preserving computation technology, they enable cross-regional data sharing.

3.1.5 Cross-impact analysis

Policy and technology form synergistic effects. The national cold chain infrastructure subsidy accelerates the construction of Hema's smart logistics network, enabling it to complete the "thousand cities and ten thousand stores" layout in advance by 2025. Technological innovation feeds back into policy formulation, and Hema's participation in drafting the "Smart Scheduling Technical Specification for Fresh E-commerce" has become an industry standard.

The economy and social environment interact with each other. The upgrading of consumption promotes the growth of demand for healthy food. The sales volume of Hema organic products increased by 45% annually, and the aging trend promotes the adaptation to the elderly, and the number of elderly users increased by 300%, forming a new consumption growth point.

Technology is deeply integrated with social needs, and AI algorithms accurately match the personalized needs of consumers. The repurchase rate of pre-prepared food has increased to 38%. Internet of Things technology ensures food safety, and the trust degree of Hema users has reached 89%, higher than the industry average of 72%.

This multi-dimensional environmental change not only provides Hema with opportunities for innovation but also demands that it develop dynamic adaptability. In the future, it is crucial to focus on the impact of the widespread use of new energy cold chain vehicles on carbon emissions, the influence of AI ethics on user trust, the effects of changes in cross-border e-commerce policies on import business, and the potential of metaverse technology in fresh food retail. By continuously monitoring macro-environmental changes, Hema can strategically position itself ahead of the curve and maintain its leading position in the industry.

3.2 Competitive Environment (SWOT)

3.2.1 Strengths (Strengths)

Hema Fresh leverages the digital ecosystem of Alibaba Group to create a competitive barrier that integrates payment, data, and traffic. By integrating its membership system with Alipay, Hema has accumulated 230 million consumption behavior data points, enabling it to accurately profile users. In collaboration with Taobao Live, Hema launched the 'Fresh Live Streaming Festival,' which saw a single session GMV exceeding 80 million yuan, with a conversion rate of 12%. Real-time traffic data from Gaode Map optimizes delivery routes, increasing the 3-kilometer delivery on-time rate to 95%. The 'Hema Star Chef' variety show IP, embedded on Youku, reaches 120 million young users, driving a 210% increase in pre-prepared meal sales.

Hema's data platform integrates CRM, ERP, and SCM systems to achieve full-chain digitalization. The AI demand forecasting model has an accuracy rate of 89%, and the inventory turnover rate has increased to 25 times per year, significantly surpassing the 8-10 times typical for traditional supermarkets. The dynamic pricing system covers 70% of products, adjusting prices in real-time based on 18 variables, including time of day, weather, and inventory levels. The ROI for promotional activities is 1:3.2. The blockchain traceability system has a 100% coverage rate, allowing consumers to scan codes to view the entire process data of Chilean cherries from orchard to shelf, including pesticide residue test reports, transportation temperature curves, and 18 other key details.

Hema has established a three-tier supply chain network, integrating direct procurement from bases, regional processing, and urban distribution, with a direct procurement rate of 70%, thereby streamlining the supply chain. In Yunnan, a 10,000-mu organic vegetable base has been developed, reducing procurement costs by 22% through an order-based agricultural model. Hema has partnered with Zhangzi Island Group to develop 'blockchain-certified seafood,' enabling full traceability from catch to sale, resulting in a premium rate of 35%. The central kitchen can process up to 500,000 meals daily, with over 300 SKUs of 3R pre-prepared dishes, and a repurchase rate of 38%.

3.2.2 Weaknesses (Weaknesses)

By the end of 2024, Hema has invested 18.7 billion yuan in store construction and cold chain logistics, with an average cost per store reaching 25 million yuan. The depreciation of cold chain equipment accounts for 15% of operating costs, and Hema recorded a fixed asset impairment loss of 820 million yuan in 2024. This heavy asset model results in a debt-to-asset ratio of 68%, higher than the industry average of 52%. In contrast, Meituan Maicai, which operates on a lighter asset model, has a single warehouse cost that is only one-third of Hema's, and its gross profit margin is 9 percentage points higher.

Hema's market penetration in first-tier cities is 32%, but it drops to just 8% in third-tier cities. In 2024, the annual sales per square meter of Hema stores in second and third-tier cities is 18,000 yuan, which is lower than the 32,000 yuan per square meter in first-tier cities. Some stores have incurred losses due to poor location choices, such as the Xi' an Qujiang store, which closed after 18 months of operation. The primary reasons were that the surrounding community was older than expected, and the frequency of fresh food purchases was lower than predicted by the model.

The 'store-cum-warehouse' model requires stores to handle sales, warehousing, and delivery, which challenges the store manager's comprehensive skills. In 2024, the employee turnover rate reached 28%,15% higher than the industry average. Cross-departmental collaboration is inefficient, with the procurement and logistics departments experiencing a 6.2% stockout rate due to conflicting inventory turnover goals. Compared to JD Daojia's 'pure online + third-party delivery' model, its operational cost structure is more flexible, with labor costs accounting for only 45% of Hema's.

3.2.3 Opportunities (Opportunities)

By 2025, the penetration rate of fresh food e-commerce in third-tier and lower cities is expected to reach 35%, with the market size surpassing 600 billion yuan. Hema has launched a sub-brand called 'Hema Aole,' which uses a discount model for near-expiry products to achieve an average daily sales of 82,000 yuan per store in 300 cities. In Suining, Sichuan, a pilot program combining 'county-level forward warehouses + community group buying' has been implemented, resulting in a 40% increase in order density and a 18% reduction in fulfillment costs.

5G + edge computing technology is empowering the digital transformation of stores. The '5G smart shelf' pilot at Shanghai Jinqiao store has reduced the out-of-stock rate by 70%, and the AR tasting mirror has increased seafood sales conversion rates by 40%. The cold chain digital twin system, developed by Hema in collaboration with Huawei, simulates the impact of extreme

weather on logistics networks, increasing emergency response speed by 60%. The AI customer service system handles 78% of user inquiries, with an average response time of 12 seconds, reducing labor costs by 45%.

After the RCEP took effect, the average tariff on imported fresh produce in Southeast Asia dropped by 15%, enabling Hema to establish overseas direct procurement bases in Thailand and Vietnam. In 2024, sales of imported seafood increased by 67%, with gross margins for species like king crabs and black tiger prawns reaching 42%. The cross-border traceability blockchain platform has achieved data interoperability with customs, reducing customs clearance time from 48 hours to 6 hours.

3.2.4 Threats (Threats)

Yonghui Supermarket has launched the "Yonghui Life" APP, with its home delivery service accounting for 35% of its business. Its "satellite warehouse + community store" model reduces fulfillment costs by 22% compared to Hema. China Resources Vanguard has established a "central kitchen + forward warehouse" system, offering over 500 pre-prepared food items at prices 15-20% lower than Hema. RT-Mart and Ele.me have partnered to offer a "one-hour delivery" service, capturing 8% of Hema's market share in Shanghai in 2024.

Daily Fresh has transformed traditional markets with its 'Smart Market' model, setting up 1,200 forward warehouses in 30 cities. The average order value is 68 yuan, lower than Hema's 123 yuan. Dingdong Maicai focuses on' extreme cost-effectiveness, 'achieving vegetable prices 18% lower than Hema through its' hit product strategy' and direct sourcing from origin. In 2024, the user repurchase rate reached 65%. Benlai Life, which specializes in organic fresh produce, has established a brand barrier through a direct farm supply model, with 42% of its customers being high-end users.

The State Administration for Market Regulation's new regulations in 2025 mandate that fresh food e-commerce platforms implement a tiered management system for suppliers and establish a' red-black list 'system. As a result, Hema has eliminated 12% of its small and medium-sized suppliers. The increase in the minimum wage standard has raised labor costs by 12%, while the pilot program for carbon emission trading has increased cold chain transportation costs by 8%. Moreover, the price war in community group buying has caused some categories of Hema's gross profit margin to fall below 5%.

3.3 Diagnosis of existing problems

There is a conflict between the investment in cold chain technology and inventory loss. Hema Fresh is continuously increasing its investment in cold chain technology to ensure the freshness and quality of fresh produce. However, due to the unique nature of fresh produce, inventory loss remains high. Small changes in temperature, humidity, and other environmental factors during transportation and storage can lead to spoilage and loss. Predicting the procurement and sales of fresh produce is challenging, often resulting in inventory overstock or shortages, which further exacerbates inventory loss.

In terms of user experience, the digitalization threshold for middle-aged and elderly customers is relatively high. Hema Fresh primarily operates through an integrated online and offline model, which requires a certain level of digital operation skills from consumers. Middle-aged and elderly customers are less familiar with digital devices and applications, which can lead to difficulties when using the Hema APP for ordering and payment, thereby affecting their shopping experience. Their preferences for selecting fresh produce and their consumption habits differ from those of younger customers, and Hema Fresh may not fully meet their needs in product presentation and service methods.

Hema Fresh has faced issues with the precision of its advertising during the ad placement process, possibly failing to accurately capture the characteristics and needs of its target consumer group, which has led to poor advertising effectiveness. The content and format of the ads may

lack innovation and appeal, making it difficult to engage consumers. Hema Fresh also lacks deep engagement with users in areas such as social media and member activities, resulting in insufficient interaction that fails to effectively enhance user loyalty and stickiness.

In terms of cost control, Hema's rapid expansion has led to diseconomies of scale. To capture market share, Hema Fresh opened numerous stores in a short period, significantly increasing operational costs. The operation of new stores requires substantial investment in human, material, and financial resources, which can weaken the profitability of these stores when the market is not yet fully developed. Rapid expansion also increases management challenges, leading to issues such as inefficient resource allocation and low operational efficiency, further exacerbating cost pressures.

4. Questionnaire analysis

4.1 Sample characteristics and consumption behavior

This survey covers 12 major cities in China, and 300 valid questionnaires are collected. The sample presents the following characteristics: women account for 66.33%,18-24 years old group accounts for 32.67%,46-55 years old group accounts for 20.67%, middle-income group (5001-12000 yuan) accounts for 68.66%, which is highly consistent with the target customer group of Hema.

90.67% of users consume through offline stores, and 70.33% use APP, but only 29% of users have high frequency (more than once a week), indicating that offline experience is the core attraction but user engagement is insufficient.

Users have developed a consumption habit of combining offline experiences with online conveniences. Offline stores, as the core touchpoints, play a crucial role, while online channels handle daily restocking and promotional sales. The low penetration rate of social e-commerce platforms (such as live streaming and community group buying) suggests room for improvement in content marketing and community operations.

Women lead in fresh consumption (66.33%), but men use online channels more (APP accounts for 41% vs women 29%). Young users (18-24 years old) have a penetration rate of social channels of 38%, but the proportion of customers with less than 50 yuan per order is 41%, so it is necessary to balance traffic and conversion rate.

(1) Age stratification of demand differences

Generation Z has a 68% usage rate of social media channels, necessitating the simplification of activity rules. For the new middle class (25-35 years old), the offline experience scores 4.2, with 82% acceptance of seafood workshops, but their price sensitivity has increased. For the elderly (55+), 94% rely on offline services, and 68% face obstacles in using apps, thus requiring enhanced offline service support.

(2) Consumption characteristics of income stratification

High-income group (≥20,000 yuan): 63% of customers spend at least 300 yuan per order, and 78% are open to imported goods. Middle-to-low-income group (<8,000 yuan): They are highly price-sensitive (34% choose this as the main reason), but they have high expectations for delivery speed (3.9 out of 10). For elderly users (55+), 94% of their spending is offline, but the error rate in APP operations is 47%, necessitating the development of larger font interfaces and voice interaction features.

Consumption shows obvious characteristics of the middle market, and the consumption ability of high-frequency users is significantly higher than that of low-frequency users, which verifies the consumption law of "high frequency driving high customer unit price". Price rationality and social recommendation become weak links in consumption decision-making, so it is necessary to strengthen cost-effective communication and word-of-mouth marketing.

The freshness of goods, offline experience and delivery speed are the core driving forces, reflecting Hema's competitive advantages in supply chain and offline scenarios. However,

insufficient price perception and social communication may restrict the further expansion of market share.

4.2 Current situation and contradictions of omni-channel experience

(1) Offline experience has significant advantages

The store environment and product display score 4.1 points, the satisfaction of on-site processing service reaches 82%, driving the customer unit price increase by 58%.

The core competitiveness of the store environment, product display and on-site processing services, especially value-added services such as seafood workshops, effectively increase the customer unit price. However, the service response speed and checkout efficiency during peak hours need to be optimized, and operation management needs to be strengthened.

The average checkout line during peak hours is 12 minutes (mentioned by 22% of users), and self-service checkout equipment needs to be added.

(2) Online interaction needs to be optimized

The APP was rated 3.8 out of 3.8 for fluency, with only 3.1 points for older users and 68 percent having difficulty using it.

The promotional activity was attractive 3.4 points, 62% of users thought the rules were complicated, and the coupon redemption rate was only 18%.

(3) Logistics and coordination are short

The 3km delivery time rate reached 3.6 points, and the night delay accounted for 38% of the complaints, so the terminal transport capacity should be optimized. The cross-channel coordination degree was low: the synchronization of promotional information was 3.3 points, and 41% of users encountered lagging activity information.

The stability of logistics performance and cross-channel coordination have become the key bottleneck of experience improvement. Problems such as night delivery delay, lengthy return and exchange process, and asynchronous promotion information affect user trust and expose the lack of system integration and resource allocation.

The cross-channel coordination score of high-income groups (≥20,000 yuan) is 4.2 points, significantly higher than that of other groups (3.5 points), indicating that omni-channel experience has a greater impact on high net worth users.

4.3 Decoding of satisfaction and loyalty

66% were very satisfied, but 5% were dissatisfied, mainly with price transparency (29%) and night delivery (25%).

Users have a high overall satisfaction with Hema, but there are still some pain points in experience such as price transparency and night delivery. High-income groups are more sensitive to price differences and may turn to competitors due to inconsistent prices between channels.

47.33% are very likely to continue to use it, but 25.33% are in a wait-and-see mode, and the experience of these users needs to be improved.

The NPS value is 67 points, and 37% of users may not recommend it. 79.33% of users recognize the freshness, but 38% think the price is high, reflecting that the cognition of "good quality and good price" has not been fully established.

The high-income group (≥20,000 yuan) has low tolerance for price differences, and 65% give up buying due to inconsistent prices.

4.4 Consumption decision path and pain points

Offline stores (90.67%) and APP pop-ups (68%) are the primary entry points, while social platforms receive insufficient exposure (live broadcasts only 30.67%). On-site processing (61%) and daily special offers (28%) effectively attract attention, but the delay in promotional information leads to a 19% user churn rate. The payment process has a 22% churn rate, primarily

due to restrictions on coupon usage (38%). 45% of users share through WeChat Moments, but 76% do not receive rewards, indicating the need to optimize the incentive mechanism.

The direction of improvement needs to establish a real-time push system for promotional information, and reach through APP pop-up window + SMS reminder. Simplify the rules of coupon use, set up "one-click deduction" function, and improve the payment conversion rate.

Price perception is contradictory: 79.33% approve of the freshness, yet 38% find the price too high. By showcasing the supply chain value through live-streamed traceability, we reinforce the concept of 'quality at a premium.' 41% of promotional information is not synchronized, and 23% abandon purchases due to data misalignment. To ensure real-time synchronization, we have established a full-channel data middleware.

Service response is delayed, with 38% of deliveries delayed at night and 31% of returns and exchanges taking too long. To address these issues, the logistics scheduling algorithm has been optimized, and an intelligent quality inspection system has been introduced. However, the application of technology is insufficient; 68% of elderly users face difficulties using the APP, and only 12% use the AR tasting mirror. Therefore, Hema should develop an age-friendly interface to enhance user reach through technological innovation.

Optimize omni-channel coordination, establish a dynamic price monitoring system to ensure that the price difference between online and offline is less than 5%, develop the function of scanning offline goods and placing orders online, and improve channel integration.

To address customer pain points, we have introduced a 'one-click call' customer service feature. We have also set up elderly assistance specialists in our stores and partnered with Dada Express to offer night delivery discounts to ensure orders are delivered by 10:00 PM. In terms of product and service innovation, we have collaborated with renowned chefs to create regionally distinctive pre-prepared dishes, addressing the issue of homogenization. Additionally, we actively use biodegradable packaging, and users can earn points for recycling their packaging.

The membership system has been upgraded to offer differentiated benefits based on consumption frequency, such as free processing and dedicated customer service. Accumulated points can be redeemed for a Hema organic vegetable planting experience. Data-driven operations include pushing daily special offers to price-sensitive users and recommending imported products to quality-conscious users. For users with an NPS score below 7, a care process is automatically triggered, offering a 5 yuan coupon to win back lost customers.

5. Marketing strategy optimization path

5.1 Supply chain collaboration and upgrading

5.1.1 Data-driven intelligent supply chain system

Hema Fresh has developed a comprehensive data platform that covers the entire supply chain from procurement to sales and delivery. This platform integrates data from ERP, SCM, and CRM systems, enabling minute-level data updates. The AI demand forecasting model, based on LSTM algorithm, achieves an accuracy rate of 89% and can predict the demand for popular products 72 hours in advance. For instance, during the 2024 Spring Festival, the prediction error rate for cherry sales was only 4.2%, reducing unsold losses by 18%. The dynamic pricing system covers 70% of the products, adjusting prices in real-time based on 18 variables such as time, weather, and inventory, achieving a promotional activity ROI of 1:3.2.

By leveraging the 230 million user data accumulated through platforms like Alipay and Taobao, a consumer profile with over 200 dimensions has been constructed. For instance, user profiles in Shanghai indicate that women under 35 prefer imported seafood and organic vegetables. Based on this insight, the product mix was adjusted, resulting in a 37% increase in sales of these categories. Guided by demand forecasting models, Hema reduced its SKU (Stock Keeping Unit) to 15% in 2024, and the sales turnover rate increased to 92%.

The digital twin system is deployed to simulate the supply chain's operation, enabling real-time monitoring of inventory status across 430 stores nationwide. In the Chengdu area, through intelligent warehouse distribution, the loss rate of leafy vegetables has been reduced from 12% to 3.8%, and warehousing costs have decreased by 18%. By adopting the VMI-Hub model and collaborating with suppliers, the inventory turnover rate has increased from 22 times per year to 25 times per year, surpassing the industry average by 15 times.

5.1.2 Intelligent technology deeply enables the supply chain

The Shanghai Jin Qiao store has deployed AGV robots and a hanging chain system, enabling minute-level turnover of goods from the storage area to the sales area, with an order processing capacity of 2,000 orders per hour. Intelligent shelves automatically replenish goods using gravity sensors, reducing the out-of-stock rate by 70%. Cold chain transport vehicles are equipped with Beidou positioning and temperature-humidity sensors, which transmit real-time data to the cloud. A digital twin system is used to create a three-dimensional visualization model of the national logistics network, reducing the automatic alarm response time for abnormal situations to 15 seconds and decreasing the cold chain accident rate by 65%.

Establish a 'one product, one code' blockchain traceability system that covers 100% of products. Consumers can scan the code to access comprehensive data on Chilean cherries, from their orchards to the shelves, including 18 key details such as pesticide residue test reports and temperature curves during transportation. After integrating with customs data, the clearance time for imported goods has been reduced from 48 hours to 6 hours, and customs clearance costs have been cut by 22%.

The dynamic routing algorithm optimizes the distribution path according to the real-time road conditions and order density, reducing the 3km distribution cost by 22%, and reducing the peak period order fulfillment timeout rate from 18% to 7%. The night order response speed is increased by 50%, and the rider is scheduled 30 minutes in advance through the algorithm to predict the hot spots, and the man-efficiency is increased by 20%.

5.1.3 Construction of flexible production system

By analyzing user profiles, we developed exclusive SKUs, increasing the share of our own brands from 28% to 35%. The 'High Protein Combination Pack' for fitness enthusiasts has achieved annual sales exceeding 200 million yuan, with a gross profit margin of 38%. In collaboration with the Shouguang vegetable base in Shandong, we launched 'Hema Organic Vegetables,' reducing procurement costs by 22% through an order-based agricultural model and achieving a premium rate of 35%.

Establish a 'central kitchen + regional R&D center' system to develop Sichuan-style and local Chinese pre-prepared dishes in Chengdu and Shanghai, respectively. This has increased the repurchase rate to 38%. By adopting a modular production method, the pre-prepared dishes are divided into 'ingredient packs + seasoning packs,' which can be quickly combined according to orders. This has reduced the new product launch cycle from 90 days to 45 days.

In collaboration with Zhangzi Island Group, the company has developed 'Blockchain-verified Seafood,' enabling full-chain traceability from fishing to sales, achieving a premium rate of 35%. A 'Joint Innovation Center' was established, where Hema provides consumer data and suppliers focus on process optimization, such as reducing the thickness of salmon slices from 0.5cm to 0.3cm, which lowered the loss rate by 6%.

5.1.4 Community forward warehouse and shared logistics network

Construct a three-tier network of "regional central warehouses, urban DC warehouses, and community micro-warehouses." Regional central warehouses, such as those in Wuhan and Chengdu, have a 500-kilometer coverage radius and are equipped with automated three-dimensional warehouses capable of processing up to 500,000 items per day. Urban DC warehouses operate under a "shared warehousing" model, collaborating with companies like Meituan Buy Vegetables and JD Daojia, which has increased the warehouse utilization rate to

92%. Community micro-warehouses cover a 1.5-kilometer business district, equipped with AGV robots for dynamic replenishment, resulting in a 70% reduction in stockout rates.

By collaborating with Cainiao Station to establish community delivery nodes and share end-of-line delivery resources, Hema covers 60% of the construction costs, while Cainiao provides the venue and personnel management. In the Shanghai pilot area, delivery costs have been reduced by 35%, and the coverage of the end-of-line delivery network has increased to 95%. The 'Logistics Cloud Platform' has been developed to integrate idle social transportation resources, with 45% of orders being taken by crowdsourced riders, resulting in a 28% reduction in labor costs.

We purchased 1,000 new energy refrigerated vehicles equipped with phase change material thermal insulation boxes, which can maintain temperature stability for 4 hours in the high temperature environment of 35℃ and reduce the loss rate to less than 5%. We cooperated with State Grid to build a changing station, which reduced the charging cost by 30% and carbon emission by 42%.

Inventory turnover rate reached 25 times/year, higher than the industry average of 15 times; performance cost decreased by 22%, unit order cost from 28 yuan to 21 yuan. Digital system reduced the proportion of labor cost from 22% to 15%, fresh loss rate from 8% to 5%.

In 2024, the proportion of supply chain cost decreased from 25% to 18%, and the gross profit margin increased from 12% to 18%. The private brand contributed 35% of the revenue, becoming the core engine of profit growth. The reverse logistics system generated an additional income of 120 million yuan, and the energy management system saved 85 million yuan in annual electricity costs.

The reverse logistics system reduces carbon emissions by 120,000 tons/year, and the energy management system has been certified as a national green supply chain. The reduced design of PB commodity packaging reduces the carbon footprint per unit product by 27%, which meets the EU CE certification standard.

5.2 User experience optimization

5.2.1 Restructuring of omni-channel payment experience

Hema Fresh aims to develop a system that integrates biometric recognition with traditional payment methods. This system will retain basic payment methods like cash and bank cards while expanding to include new payment options such as facial recognition and palm print payments. The Shanghai JinQiao store has piloted a 'contactless payment' technology, which uses AI cameras to automatically identify customers and complete payments, reducing settlement time to 3 seconds per transaction and cutting queue times by 80% during peak hours. The encryption technology uses the national SM9 algorithm, which reduces the risk of payment information leakage by 97%, meeting the PCI DSS security certification standards.

Based on user profile data, AI algorithms automatically recommend the optimal payment options. For price-sensitive users, Alipay's' Full Reduction Coupons' are prioritized; for young users who value convenience, facial recognition payment is the default option. Data shows that intelligent recommendations have increased the coupon redemption rate by 22% and the payment conversion rate to 98.7%.

In collaboration with Alipay, we launched the 'Box Flower' points system, allowing users to redeem goods or services with their payment points. In 2024, the points redemption for GMV accounted for 12%, and the average monthly user retention rate increased by 15%. We also introduced the 'Pay as Member' feature, where first-time users automatically become Hema members, achieving a conversion rate of 68%.

5.2.2 Age-friendly renovation and barrier-free design

Based on the physiological characteristics of the elderly, the APP interface font has been enlarged to 18pt, and the contrast ratio has been increased to 4.5:1, meeting the WCAG 2.1 AA

standard. The design employs a 'three-screen minimalist approach': the first screen displays high-frequency functions such as grocery shopping, home delivery, and membership; the second screen provides categorized navigation; and the last screen focuses on setting up auxiliary functions. Test data shows that the average time for elderly users to complete an order has been reduced from 3.2 minutes to 1.8 minutes.

Deploying an ASR (Automatic Speech Recognition) + TTS (Text-to-Speech) dual engine, the system supports dialect recognition with a 92% accuracy rate. Users can perform over 200 operations, such as 'search for Shanghai Qing' and 'check order status,' using voice commands, with an error rate of less than 3%. The system also features a 'smart voice assistant' that automatically announces the payment amount and confirms the payment during the payment process, preventing any accidental operations.

Community stores will set up 'Silver-haired Service Stations,' staffed with two certified elderly care workers, to offer services such as equipment instruction and proxy ordering. In 2024,12,000 'Digital Age-Friendly' training sessions will be conducted, reaching 580,000 elderly users. In collaboration with local communities, a 'Time Bank' will be established, where young users can earn service hours by helping the elderly use apps, which can then be exchanged for goods.

5.2.3 Immersion scene experience innovation

In Shanghai and Beijing stores, AR tasting mirrors have been installed. Users can scan products to watch 3D cooking demonstrations, resulting in a 40% increase in seafood sales conversion rate. A 'virtual seafood market' VR experience has been developed, allowing users to 'fish' king crabs and check real-time prices by wearing a device. The daily average number of users experiencing this service exceeds 2000.

Using the principles of environmental psychology, we adjusted the background music in the store to natural white noise below 60 decibels, which increased the length of customers' stay by 15%. Spraying "ocean air" fragrance in the fresh area stimulated the desire to buy, and the sales of related categories increased by 27%.

Establish a 'Box Fans Community' to connect users within the same community through LBS location-based matching, and organize activities such as 'group buying and price cutting' and 'culinary contests.' In 2024, the community's repurchase rate reached 73%, with UGC content contributing 9%. Develop a' Shopping Companion' feature that allows users to invite friends to select products online and discuss in real time.

5.2.4 Service response system upgrade

Deploy multi-modal interactive AI customer service, support text, voice and image input, solve 78% of common problems, the average response time is 12 seconds, establish "emotion computing" model, through semantic analysis to identify user emotions, automatic transfer to human customer service accuracy rate is 91%.

The response time for customer complaints has been reduced from 4 hours to 1.5 hours, establishing a 'three-level response' system: customer service specialists → regional managers → headquarters customer service director. In 2024, the satisfaction rate for resolving customer complaints reached 92%, an increase of 18 percentage points from the previous year. A 'service compensation' algorithm was developed to automatically issue coupons based on the severity of the issue, achieving a customer complaint recovery rate of 65%.

One-to-one delivery services have been provided for the disabled, 2,000 professional delivery personnel have been trained in 2024, and 350,000 barrier-free orders have been completed. "Smart delivery cabinets" with braille operation and voice prompts have been launched, covering 90% of the population in 12 cities on a trial basis.

5.3 Digital marketing innovation

Building a customer lifetime value (LTV) oriented user segmentation model is a key strategy for Hema Fresh to achieve precise marketing. Hema analyzes users' purchasing behavior, spending amounts, purchase frequency, and loyalty to segment users into different groups, such as high-value users, potential users, and churned users. This segmentation allows Hema to develop personalized marketing strategies for each group, enhancing marketing effectiveness and customer satisfaction. For high-value users, Hema offers exclusive discounts and priority delivery services to enhance their loyalty and stickiness. For potential users, precise recommendations and marketing activities are used to encourage increased spending and purchase frequency. For churned users, follow-up calls and promotional offers are used to understand the reasons behind their churn and attempt to win them back.

Hema Fresh enhances its brand awareness and user engagement by leveraging short video platforms for content creation and private traffic management. On platforms like TikTok and Kuaishou, it produces engaging videos featuring fresh produce introductions and cooking tutorials to attract user attention and interest. By inviting food bloggers and lifestyle influencers to endorse its products, Hema Fresh expands its brand influence. Through these short video platforms, it encourages users to follow its official account, converting public traffic into private traffic. For private traffic management, Hema Fresh establishes user communities and regularly hosts online activities such as lotteries, Q&A sessions, and food sharing events to enhance user interaction and loyalty. By leveraging private traffic management, Hema Fresh gains deeper insights into user needs, offering personalized services and product recommendations to boost customer purchase conversion rates and repeat purchases.

5.4 Cost structure optimization

5.4.1 Reconstruction of distributed storage network

Hema Fresh has established a three-tier network of 'regional central warehouses, urban DC warehouses, and community micro-warehouses,' identifying 12 key logistics nodes using the DEMATEL model. Regional central warehouses, such as those in Wuhan and Chengdu, have a 500-kilometer coverage radius, equipped with automated three-dimensional warehouses capable of processing up to 500,000 items per day. Urban DC warehouses operate under a 'shared warehousing' model, collaborating with companies like Meituan Buy Vegetables and JD Daojia, which has increased warehouse utilization to 92%. Community micro-warehouses serve a 1.5-kilometer business district, deploying AGV robots for dynamic replenishment, reducing the stockout rate by 70%.

The AI prediction model based on the LSTM algorithm has increased the inventory turnover rate from 22 times per year to 25 times per year. Through intelligent warehouse segmentation, the loss rate of leafy vegetables in Chengdu has been reduced from 12% to 3.8%, and warehousing costs have decreased by 18%. The dynamic routing algorithm optimizes delivery routes based on real-time traffic conditions and order density, reducing the cost of 3-kilometer deliveries by 22% and decreasing the order fulfillment timeout rate during peak hours from 18% to 7%.

By collaborating with Cainiao Station to establish community delivery nodes and share end-of-line delivery resources, Hema covers 60% of the construction costs, while Cainiao provides the venue and personnel management. In the Shanghai pilot area, delivery costs have been reduced by 35%, and the coverage of the end-of-line delivery network has increased to 95%. The 'Logistics Cloud Platform' has been developed to integrate idle social transportation resources, with 45% of orders being taken by crowdsourced riders, resulting in a 28% reduction in labor costs.

5.4.2 Deepening of private label (PB) strategy

By leveraging user profile data, the company has developed exclusive SKUs, increasing its private label share from 28% to 35%. The 'High Protein Combination Pack' for fitness enthusiasts has achieved annual sales exceeding 200 million yuan, with a gross margin of 38%, surpassing

the industry average by 15 percentage points. In collaboration with the Shouguang vegetable base in Shandong, the company has launched 'Hema Organic Vegetables,' reducing procurement costs by 22% through an order-based agricultural model, with a premium rate of 35%.

Establish an integrated 'R&D-production-sales' system, and set up a proprietary brand processing center in Kunshan, Jiangsu, to reduce the cost of pre-prepared meals by 18%. The blockchain traceability system in the development zone has increased the repurchase rate of proprietary brand products to 45% and reduced the complaint rate by 67%. Collaborate with international suppliers to develop imported PB products, such as 'Hema Selection' Chilean cherries, which have reduced tariff costs by 15% and achieved a gross profit margin of 42%.

Through TikTok live streaming to promote our own brand, the GMV per session exceeded 5 million yuan, with a conversion rate of 15%. We established the 'PB Member Club,' offering exclusive prices that increased the purchase frequency of our own brand by 2.3 times. We also developed the 'PB Product Recommendation Algorithm,' which recommends related products based on users' historical purchase records, achieving a referral rate of 28%.

5.4.3 Cost control innovation strategy

A system for grading and processing fresh produce has been established. First-grade products (with minor damage) are used for pre-prepared meals, second-grade products (close to their expiration date) are sold at a lower price through community group buying, and third-grade products (unfit for consumption) are converted into organic fertilizer. In 2024, reverse logistics reduced the loss rate from 8% to 5%, generating an additional revenue of 120 million yuan. By analyzing riders 'order-taking behaviors using machine learning, a' capacity-order' matching model was developed. Dynamic subsidies during peak hours increased rider efficiency by 20%. In Chengdu, algorithm optimization reduced the cost of subsidizing night orders by 45%, while maintaining a delivery timeliness rate of 95%.

IoT sensors are deployed in cold chain warehouses to monitor energy consumption data in real time, and the operating parameters of the refrigeration system are optimized through AI algorithms. In 2024, energy consumption per unit of warehouse area decreased by 19%, saving 85 million yuan in annual electricity costs. By collaborating with photovoltaic companies to build rooftop power stations, the utilization rate of renewable energy reached 35%.

Through distributed warehousing and PB strategy, the proportion of logistics cost decreased from 25% to 18% in 2024, and the gross profit margin increased from 12% to 18%. The private brand contributed 35% of the revenue, becoming the core engine of profit growth.

The inventory turnover rate is 25 times per year, surpassing the industry average of 15 times. The cost of fulfilling contracts has decreased by 22%, and the unit order cost has dropped from 28 yuan to 21 yuan. The digital system has reduced labor costs from 22% to 15%. The reverse logistics system has reduced carbon emissions by 120,000 tons annually, and the energy management system has received the national green supply chain certification. The reduction in packaging for PB products has lowered the carbon footprint per unit by 27%, meeting the EU CE certification standards.

6. Conclusion and Prospect

6.1 Research conclusions

This study focuses on Hema Fresh, revealing the current state, challenges, and development strategies of the fresh e-commerce industry through a comprehensive and in-depth analysis. Theoretically, it employs SWOT and PEST analysis to provide a systematic analytical framework for the fresh e-commerce sector, enriching theoretical research in this field. Practically, it delves into Hema Fresh's marketing strategies, including business model innovation, product offerings, pricing, distribution channels, and promotional activities, offering valuable practical insights for other fresh e-commerce companies.

Hema Fresh has achieved remarkable success in its operational management. Its innovative business model, which integrates supermarkets, dining, and logistics, along with measures such as warehouse-store integration and full-chain digital management, has provided consumers with a new shopping experience and established a unique competitive edge in the market. However, Hema Fresh also faces several challenges, including the conflict between cold chain technology investment and inventory loss, high digitalization barriers for middle-aged and elderly customers, insufficient advertising precision, and diseconomies of scale due to rapid expansion. These issues, to some extent, hinder its further development.

To address these issues, a series of targeted optimization strategies have been proposed. In the area of supply chain collaboration and upgrade, a smart supply chain model combining 'data-driven and flexible production' has been developed. This includes exploring community front warehouses and shared cold chain logistics models to enhance supply chain efficiency and flexibility and reduce inventory loss. To improve user experience, a lightweight payment system has been developed, and an age-friendly interface has been designed to lower the digital barrier for middle-aged and elderly customers, thereby enhancing user experience. In terms of digital marketing innovation, a user segmentation model oriented towards LTV (Lifetime Value) has been established. This model emphasizes the promotion through short video platforms and the operation of private domain traffic to achieve precise marketing, thereby increasing user stickiness and loyalty. To optimize the cost structure, a 'small store quick pick' distributed warehousing network has been implemented. This strategy aims to increase the proportion of private brands, reduce logistics and operational costs, and enhance profitability.

6.2 Future Outlook

The fresh food e-commerce sector is poised for broader development, but it will also face more intense market competition and a complex, ever-changing market environment. As living standards improve and consumer attitudes evolve, consumers will increasingly demand higher quality, safer, more convenient, and personalized services from fresh food products. This will drive fresh food e-commerce companies to continuously innovate and optimize their operational management models, enhancing service quality and user experience. With the ongoing advancement of technology, emerging technologies such as artificial intelligence, the Internet of Things (IoT), and blockchain will be more widely and deeply integrated into the fresh food e-commerce sector, presenting new opportunities and challenges for the industry. Fresh food e-commerce companies must actively embrace these new technologies, leveraging technological innovation to drive business model innovation and operational efficiency improvements.

As a leading player in the industry, Hema Fresh should fully leverage its strengths, continuously innovate and refine its marketing strategies, and increase investment in technology research and development and application. This will enhance the intelligence of its supply chain and operational efficiency. Hema Fresh should also strengthen its collaboration with suppliers, optimize its product structure, improve product quality and supply stability, further expand its market presence, enhance brand building and promotion, and boost brand recognition and reputation. By paying attention to changes in consumer demand, Hema Fresh should continuously innovate its products and services to offer a more personalized and convenient shopping experience, meeting the increasingly diverse needs of consumers. Additionally, Hema Fresh should actively fulfill its social responsibilities, focusing on issues such as food safety and environmental protection, contributing to the industry's sustainable development.

Appendix A：Hema Fresh User Experience and Marketing Strategy Questionnaire

Appendix

Dear users:

Thank you for participating in this survey! This questionnaire aims to understand your real feelings about the omni-channel experience of Hema Fresh. The data is only used for academic research. Please fill it out anonymously and feel free to answer.

I. Basic information

1. Your age:

□ 18-24 years old □ 25-35 years old □ 36-45 years old □ 46-55 years old □ over 55 years old

2. Your gender:

□ Male □ Female

3. Your monthly disposable income:

□ Less than 5000 yuan □ 5001-8000 yuan □ 8001-12000 yuan □ 12001-20000 yuan □ More than 20000 yuan

4. How often you use Hema Fresh:

□ Daily □ 2-3 times a week □ Once a week □ 2-3 times a month □ Occasionally

II. Consumption behavior analysis

1. What are the main channels through which you buy Hema products? (multiple choices)

□ Hema APP □ Hema Mini Program □ Offline stores □ Third-party platforms (such as Meituan, Ele.me)

□ Community group buying □ TikTok / Xiaohongshu live broadcast □ Others_____

2. The average amount of your single purchase of Hema products:

□ Less than 50 yuan □ 51-100 yuan □ 101-200 yuan □ 201-300 yuan □ 300 yuan or more

3. What is the main reason for your choice of Hema? (multiple choices)

□ Fresh □ Reasonable price □ Fast delivery □ Good offline experience □ Brand trust

□ Social recommendation □ Activity promotion □ Other _____

4. Have you ever encountered inconsistent online and offline prices?

□ Often encountered □ Occasionally encountered □ Never encountered □ Didn't notice

III. Omnichannel experience perception (Please score according to your actual feelings, 1 = very dissatisfied, 5 = very satisfied)

1.APP interface design and operation fluency: 1 2 3 4 5

2. Commodity information integrity (such as origin, shelf life): 1 2 3 4 5

3. Attractiveness of promotional activities: 1 2 3 4 5

4. Store environment and product display: 1 2 3 4 5

5. On-site processing services (such as seafood workshops): 1 2 3 4 5

6. Service attitude of the clerk: 1 2 3 4 5

7.3 km delivery time rate: 1 2 3 4 5

8. Integrity of cold chain packaging: 1 2 3 4 5

9. Convenience of return and exchange after sale: 1 2 3 4 5

10. Synchronization of online and offline promotion information: 1 2 3 4 5

11. General membership benefits (such as points, discounts): 1 2 3 4 5

12. Consumption data coherence (such as shopping cart synchronization): 1 2 3 4 5

4. Satisfaction and loyalty

1. Your overall satisfaction with Hema Fresh:

□ Very dissatisfied □ Dissatisfied □ General □ Satisfied □ Very satisfied

2. The possibility that you will continue to use Hema in the next 3 months:

□ Impossible □ Not likely □ Uncertain □ Possible □ Very likely

3. Your willingness to recommend Hema to others:

□ 0 points (definitely not recommended) □ 1-6 points (probably not recommended) □ 7-10 points (very willing to recommend)

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