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Exploration of Perceived Value in Fresh Agricultural Products E-commerce Platform's Politeness Architecture

I-Ching Chen*
Jintong Huang**

Structured abstract

Background information & problem statement: Online shopping has become a mainstream trend, with more and more agricultural enterprises and individuals joining e-commerce platforms to sell agricultural products. In the increasingly competitive e-commerce industry market, fresh agricultural products enterprises need to improve their service levels and quality to the outside world, gain consumers' favor, and enhance customer loyalty in order to have strong competitiveness.

Motivation: This study analyzes consumers' behaviors and habits when purchasing fresh agricultural products on e-commerce platforms, explores the factors influencing consumers' purchasing decisions on e-commerce platforms, and suggests that fresh e-commerce enterprises optimize internal decisions or processes according to research conclusions to attract and retain consumers, thereby enhancing enterprise competitiveness.

Research method: This investigation adopts the Critical Incident Technique (CIT) methodological framework to systematically capture user perceptions regarding fresh produce e-commerce services. Through triangulated data collection employing structured questionnaire instruments and semi-structured interviews, the protocol enables rigorous identification and categorization of service interaction patterns. The analytical process culminates in quantitative evaluation of intercoder reliability indices and content validity metrics, ensuring methodological robustness.

Findings & conclusion: The findings provide diagnostic heuristics for platform operators to decode user experience profundity through three actionable dimensions: interface protocol recalibration, transaction friction minimization, and quality assurance harmonization. These evidence-based recommendations facilitate strategic alignment between platform governance models and merchant operational practices, ultimately enhancing transactional ecosystem sustainability through politeness-driven engagement optimization.

Keywords:

E-commerce Platform;
Politeness Framework;
Service Evaluation;
User Experience;
E-commerce Service Quality.

Author correspondence:

I-Ching Chen,
Email: jineandya@gmail.com

1. Introduction

In recent years, the fresh e-commerce industry has rapidly developed, and customer experience in this sector has significantly improved. However, despite high satisfaction levels, customer repurchase rates on major fresh agricultural products e-commerce platforms are still low. This forces these platforms to invest heavily in acquiring new customers, often with unsatisfactory results. Issues such as high loss rates, inconsistent product quality, stock shortages, slow deliveries, and difficulties in after-sales service often draw public attention in online fresh agricultural product shopping. Thus, studying how fresh agricultural products e-commerce platforms can address these service issues and improve customer experience is particularly urgent.

* School of Economics and Management, Zhaoqing University, 526060, Zhaoqing, China
** School of Economics and Management, Zhaoqing University, 526060, Zhaoqing, China

This paper focuses on the relationship between the service quality of fresh agricultural products e-commerce platforms and customer behavior intentions. Through data analysis and verification, it provides targeted suggestions for the development of China's fresh agricultural products e-commerce industry. The paper first summarizes relevant articles on fresh agricultural products e-commerce platforms, factors influencing consumer purchase decisions, and consumer experiences. Next, it analyzes the factors influencing consumers' perceived value when purchasing fresh agricultural products, based on politeness framework and CIT research methods. The data is then subjected to descriptive statistical analysis and reliability and validity analysis, leading to conclusions.

2. Literature Review

2.1 Fresh Agricultural Products E-commerce Platform

Fresh e-commerce is an online agricultural product sales model that evolved due to changes in the consumer market. This model uses e-commerce platforms as intermediaries to facilitate secure online transactions between sellers and buyers. Foreign studies have also provided insights into the development of the fresh e-commerce industry. Hong, W. et al. (2019) mentioned in their article that with the development of the internet and the diversity of consumption models, fresh agricultural products have gradually become mainstream in e-commerce platform sales. As the fresh e-commerce model matures, the behavior of consumers purchasing fresh agricultural products online has become a significant customer group among online platform consumers. Briz, J. et al. (2016) suggested that as e-commerce sales become more popular among the general consumer base and the external operating environment improves, companies can combine external policy support for industry development with the continuous improvement of online platforms to promote their reforms. Shaosheng, J. et al. (2017) stated that the development and promotion of fresh e-commerce online transactions increase the variety of products sold by companies, providing more choices for consumers. The fresh e-commerce model more accurately meets consumers' shopping needs during transactions, positively impacting the overall market operating environment. The fresh e-commerce model is a significant trend for the future of fresh sales, and foreign scholars have also offered suggestions for its industry development. Franck Galtier, Hélène David-Benz, et al. (2014) pointed out that during online transactions on e-commerce platforms, the improvement of information technology makes the sales process more transparent and standardized. Additionally, the integration and efficient operation of logistics and transportation in the entire supply chain process are key to achieving an advantageous position for online sales of agricultural products. Rahayu, R. et al. (2015) stated in their research that during the development of the fresh e-commerce industry, introducing relevant enterprise encouragement policies, macro-control of the external operating environment, and investment in technological research and development will all promote industry development. Tan, Y. & Wu, D. (2013) according to the characteristics of fresh produce, a distribution model was developed. The model consists of a single distribution center and multiple demand points. The combined cost of transportation cost and time cost is taken as the optimization target. And attract consumers to choose their platforms in shopping decisions, achieving a positive market cycle while benefiting enterprise development.

In the combination of agriculture and e-commerce, agriculture's high fragmentation has been identified as a potential development direction in the e-commerce industry (Balasub et al., 2018), giving rise to the concept of Agricultural E-Commerce (AE). Pool, B.(2001) believed that developing agricultural e-commerce can bring a series of positive effects on economic development. He argued that developing agricultural e-commerce promotes information transmission, strengthens industry cooperation, and enhances market openness and price discovery. The emergence of agricultural e-commerce combines the internet, agriculture, and e-commerce organically, demonstrating the driving effect of e-commerce on agriculture and injecting vitality into specialized and modern agricultural development. Malone et al. (1987) stated that fresh e-commerce platforms are virtual spaces that rely on internet and other technologies to achieve transactions. Scholars have approached the classification of fresh agricultural products e-commerce platforms from different perspectives. Mueller (2001) believed that the most common business model in agricultural e-commerce is Business-to-Business (B2B). Sturiale et al. (2017) conducted research on the e-commerce of fresh agricultural products in Italy and suggested incorporating social networks into the agricultural food system to provide better services. Song (2019) addressed the high loss rate of fresh agricultural products in the actual supply chain operation and studied the coordination among fresh e-commerce platforms, third-party logistics service providers, and community convenience stores, offering suggestions for maximizing the profits of fresh e-commerce companies from the perspectives of supply chain integration and coordination. Thus, the gradual maturity of fresh e-commerce platforms positively impacts the ecological optimization of fresh agricultural products sales models. The distribution of service relationships in fresh agricultural products e-commerce is illustrated in Figure 1.

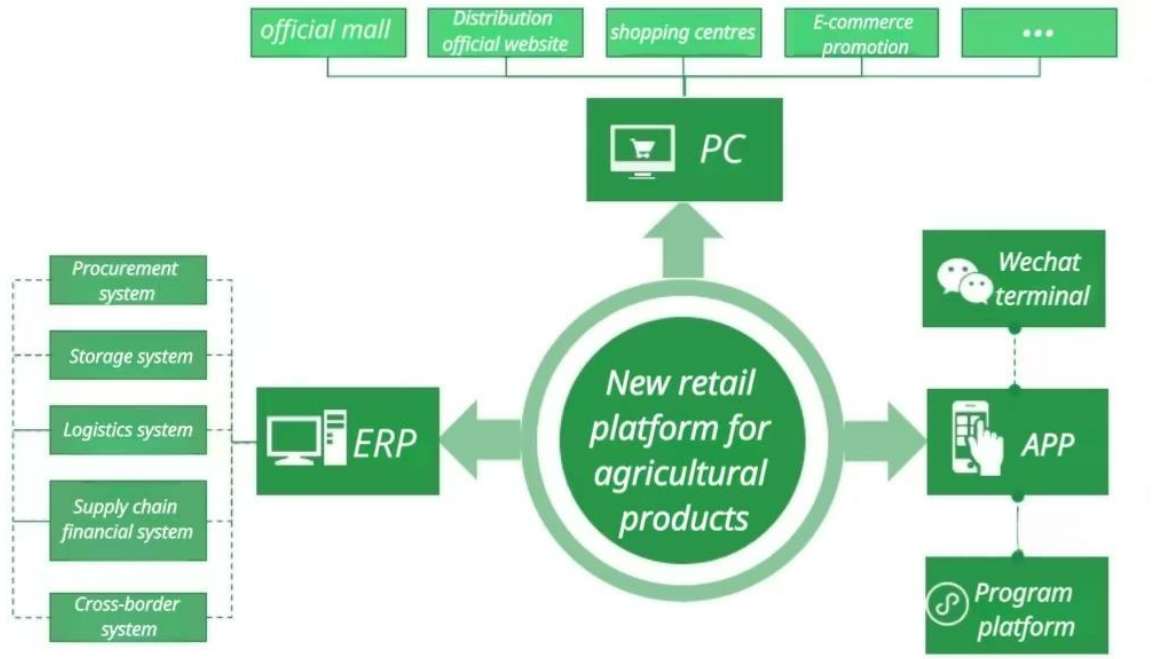

Figure 1. Agricultural products e-commerce service relationship chart

The integration system of e-commerce and supply chain management combines the core aspects of modern business, constructing a full-chain ecosystem from front-end sales to back-end management. This system is based on digitalization and promotes the intelligent and integrated development of business operations through diversified channels, efficient coordination, and intensive management.On the sales end, official stores, distribution websites, and shopping malls cover multi-level markets including brand direct sales, agent distribution, and direct consumer purchases. The mobile end reaches all scenarios through WeChat, apps, and mini-programs, meeting the demand for online and offline integration. The new retail platform optimizes the consumer experience driven by data, while the cross-border system integrates international resources to support global business expansion.On the operations end, the focus is on efficiency enhancement and resource coordination. The e-commerce promotion module enhances conversion rates through precise marketing; the procurement, warehousing, and logistics systems constitute the supply chain middle platform, shortening product circulation cycles through standardized processes and intelligent scheduling. The "shared" mechanism reduces costs through resource reuse, and the agricultural product section promotes the digitalization of the agricultural supply chain by integrating direct procurement and cold chain logistics, reducing intermediate links.On the management end, ERP(Enterprise Resource Planning) is at the core, integrating financial and inventory data to achieve full-process digital control. The financial system provides payment and financing services to optimize capital flow; the underlying supply chain module ensures efficient linkage between procurement, production, and sales through information coordination.

The innovation of this system lies in internal and external collaboration: internally, efficiency is improved through resource sharing, and externally, the cross-border module expands international layout. The technical architecture combines a lightweight front end (such as mini-programs) with a robust back end (such as Enterprise Resource Planning), balancing user experience and system reliability. Overall, the new architecture for fresh agricultural products e-commerce provides a systematic framework for enterprises' digital transformation, aligning with modern business development trends and offering feasible paths for cost reduction, efficiency improvement, and competitiveness enhancement in practice.

2.2 Politeness Framework

The world has gained tremendous benefits from the computerization of manual processes, but in this transition, we've lost flexibility, a key feature of politeness software. The evolution of social roles in digital interfaces—agents, assistants, and facilitators—introduces a novel design imperative: computational politeness. A social agent, defined as an artificial entity mediating human interactions through delegated social representation (Whitworth, B. & Liu, T. , 2008), operates within inherently social contexts despite its non-sentient nature. While software lacks intrinsic sociality, its function as an interaction mediator necessitates adherence to social protocols. When serving as user proxies, such systems must demonstrate politeness in human-computer exchanges. Empirical evidence suggests that socially calibrated interface design enhances

user satisfaction and platform competitiveness (Chen, I. C. & Huang, J. T., 2025). Ironically, organizations frequently deploy software exhibiting socially disruptive behaviors—interruptions, interface hijacking, and privacy violations—that would be professionally unacceptable in human agents (Cooper, A., 1999). This contradiction underscores the necessity of politeness computing: the technical implementation of socially intelligent interaction patterns.

User attrition due to interface impoliteness constitutes a distinct failure modality—social operational errors. Contrasting with technical failures (e.g., system crashes), social errors manifest through user alienation caused by interactional offensiveness (Whitworth, B. & Ahmad, A. , 2013). This dimension remains orthogonal to conventional usability metrics: systems may exhibit technical efficiency with social discourtesy, or politeness with functional complexity. Whereas usability optimization reduces training costs, politeness implementation ensures sustainable human-agent collaboration.Quantitative studies validate politeness's operational significance in digital environments. E-commerce analyses demonstrate measurable correlations between politeness metrics and transaction volumes, reflecting growing commercial prioritization of interactional etiquette (Chen, I. C., & Hu, S. C., 2017). From an implementation perspective, polite system architecture requires: 1) user autonomy preservation through consent-based data operations; 2) decision-support through transparent information disclosure; 3) interactional continuity via memory retention; 4) user command prioritization over autonomous program execution. This framework aligns with conversational politeness models emphasizing bidirectional control exchange (Whitworth, B. , 2005), where interface design emulates human conversational protocols respecting user agency.

3. Research Methods

This study uses both interviews and questionnaires to collect samples. First, users' opinions on fresh agricultural products e-commerce platform services are obtained through questionnaires and interviews. Data considered "critical incidents" are identified, then analyzed and summarized. The survey questionnaire aims to understand users' subjective opinions on fresh agricultural products e-commerce platform service management. For a visual understanding of the sample data, the subjective questions include:

Q1: Please describe your most satisfying incident experience when purchasing fresh agricultural products through e-commerce.

Q2: Please describe your most dissatisfying incident experience when purchasing fresh agricultural products through e-commerce.

3.1 Critical Incident Technique

This research adopts the Critical Incident Technique (CIT), a validated behavioral analysis framework enabling systematic documentation and taxonomical analysis of human interaction patterns. As a phenomenological inquiry tool, CIT operationalizes respondent-identified impactful events through tripartite examination of cognitive schemas, affective responses, and behavioral manifestations (Flanagan, 1954). Extensively applied across interdisciplinary contexts—including pedagogical effectiveness assessment, service encounter optimization, and organizational behavior studies—its psychometric robustness has been empirically substantiated through seven decades of methodological refinement. The protocol's implementation involves four operational phases: Incident Elicitation : Capturing subject-reported consequential interactions; Taxonomic Structuring : Developing categorical frameworks through iterative coding; Multidimensional Analysis : Interpreting incidents through cognitive-affective-behavioral lenses; Validation Cycling: Ensuring classification reliability through temporal and intercoder consistency checksInitially, CIT was mainly applied in non-service fields, but since 1990, subsequent research has used CIT in business economics, human resources, and marketing management. For example, Anders Ericsson (1984) et al explored the complementary role of CIT in cognitive task analysis; Butterfield, L. D. et al. (2005) conducted a comprehensive review of the development of CIT over the past 50 years to explore its applicability in modern research.Currently, the application of CIT has expanded to multiple fields, including management, human resources, hospitality, and education. CIT collects profound incidents reported by subjects, incorporating subjective cognition, emotions, and behavior into qualitative analysis, helping researchers classify events. Analyzing these events helps identify reasons for customer dissatisfaction. Therefore, this study uses this method to determine directions for improving service quality by analyzing service failure incidents and providing targeted suggestions for fresh agricultural products e-commerce platforms.

3.2 Research Design

This investigation employs a qualitative exploratory design to examine user experiences within fresh agricultural e-commerce ecosystems. Adhering to participant recruitment criteria targeting current and former users of perishable goods platforms, data acquisition spanned 28 days (November 13 - December 11, 2024) through structured questionnaire administration. The response validation protocol yielded 103 analyzable instruments against 59 excluded submissions due to incompletion or response bias, aligning with Flanagan's

(1954) methodological guideline suggesting 50-100 critical incidents as sufficient for robust qualitative analysis.The instrument design specifically probed service satisfaction dimensions within perishable goods e-commerce contexts, implementing random sampling protocols to ensure population representativeness. Following immediate post-survey data harvesting, the research team executed a triphasic analytical procedure: Primary Coding: Dichotomous categorization of responses into satisfactory/unsatisfactory critical incidents; Triangulated Validation: Three independent coders conducted blinded classifications, followed by temporal consistency verification through one-month interval recoding; Psychometric Evaluation: Quantitative assessment of intercoder reliability metrics and content validity indices.This methodological architecture enables systematic evaluation of service quality parameters within perishable goods digital marketplaces, ultimately informing evidence-based optimization strategies for computational politeness frameworks.

4. Data Analysis

4.1 Basic Information

The sample composition analysis revealed distinct population characteristics through descriptive statistical assessment of five demographic parameters. Gender distribution showed marginal male predominance (53.40%, n=55) over female participants (46.60%, n=48), with pronounced age concentration in the 20-30 cohort reflecting platform usage youth trends. Educational attainment patterns indicated strong academic credentials, as over 80% of respondents held bachelor's degrees or higher, suggesting heightened digital literacy within the participant pool.

4.2 Reliability and Validity Testing

The empirical validation phase employed intercoder reliability testing via Cohen's Kappa coefficient protocol, aligning with international standards for nominal data analysis. Quantification of classification consistency demonstrated moderate-to-high agreement levels across coder dyads: satisfactory incident consensus ranged 76-88 events (Table 1), while unsatisfactory event alignment spanned 69-75 instances (Table 2). Reliability coefficients exceeded the 0.61 acceptability threshold across all dimensions, with peak values approaching the 0.80 high-reliability benchmark, thereby substantiating the coding framework's operational robustness.

Table 1. Intercoder Consistency – Satisfactory Incidents.

Table 2. Intercoder Consistency – Unsatisfactory Incidents.

Number	Classifier 1	Classifier 2	Classifier 3
Classifier 1	90	--	--
Classifier 2	88	87	--
Classifier 3	80	76	79

Number	Classifier 1	Classifier 2	Classifier 3
Classifier 1	92	--	--
Classifier 2	69	88	--

Classifier 3	75	72	82

The categorization process adhered to a dual optimization protocol: maximizing intra-group semantic coherence while ensuring inter-group discriminability. Following systematic consolidation of coding outcomes, Table 1 presents the consensus-derived frequency distribution of satisfactory critical events among three independent coders, with Table 2 detailing corresponding unsatisfactory instances. Inter-rater concordance metrics and classification reliability coefficients were computed through Equations (1) and (2) respectively. Analysis revealed mean agreement indices (A) of 0.79 for satisfactory events and 0.70 for unsatisfactory cases. Both values surpassed the 0.65 threshold for moderate agreement in qualitative coding protocols. Reliability coefficients (R) reached 0.92 and 0.88 for satisfactory and unsatisfactory classifications respectively, exceeding the 0.85 benchmark for methodological rigor in critical incident analysis (see Table 3 for consolidated metrics). These quantitative outcomes validate the classification scheme's operational robustness.

$$A = \frac{\frac{2M_{12}}{n_1+n_2} + \frac{2M_{23}}{n_2+n_3} + \frac{2M_{13}}{n_1+n_3}}{N} \quad (1)$$

$$\mathrm{R} = \frac{(\mathrm{N} \times \mathrm{A})}{1 + [(\mathrm{N} - 1) \times \mathrm{A}]} \quad (2)$$

Table 3. Critical Incident Classification Statistics.

Critical Incident	**Average Interjudge Agreement (A)**	**Reliability (R)**
Satisfactory	0.79	0.92
Unsatisfactory	0.70	0.88

The scale used in this study demonstrates good content validity. According to the data in Table 3, where A represents the average interjudge agreement of critical incident classification; R represents the reliability of critical incident classification; n is the number of samples classified by each judge; M is the number of events classified the same by both; and N is the number of judges. The reliability calculated by the three coders for both satisfactory and unsatisfactory critical incidents exceeded the 0.80 standard. The coding results of the three researchers were integrated to form the final results.

Through systematic content analysis, the empirical data were methodologically categorized to enable identification of recurrent patterns in service satisfaction evaluation. This methodological approach facilitated rigorous thematic extraction and operational characterization of user-perceived service dimensions. The application of Critical Incident Technique (CIT) proved instrumental in deconstructing the platform's politeness architecture, with particular emphasis on critical event unit analysis. Our empirical investigation comprising 103 participants yielded a matched set of 103 critical incidents directly pertaining to e-commerce platform etiquette frameworks. Representative exemplars of both satisfactory and unsatisfactory interaction episodes are systematically presented in Tables 4 and 5 respectively, illustrating the polarity dimensions within politeness-related user experiences.

Table 4. Examples of Satisfactory Critical Incidents in the Survey Questionnaire (Partial).

Satisfactory Critical Incidents	
Classification words	**Examples(Partial)**
Sensory	"I bought a case of organic eggs on Suning. When placing an order, the platform provides detailed product source information to ensure that the eggs

	come from antibiotic-free farms. After receiving the goods, the eggs look intact, and each egg has a clear production date. When cooked, the egg is delicious and the yolk is golden. This shopping made me very satisfied with the transparency and quality of Suning Tesco's products."
Interaction	"When using "Taobao to buy vegetables", I received the goods and found that part of the fruit is not fresh, too cooked and rotten, I took a picture to apply for a refund to the system, without the merchant review, the system immediately gave me a refund after a few seconds."
Emotion	"In winter, I bought Wogan on Taobao. I placed the order for half a month, and it was delivered in two days, and it was very fresh, without a rotten fruit, and it tasted very good."
Security	"Fresh vegetables and fruits were successfully placed on the e-commerce platform, and delivered on the same day or the next day, and all the products maintained a high freshness."

Table 5. Examples of Unsatisfactory Critical Incidents in the Survey Questionnaire (Partial).

Unsatisfactory Critical Incidents	
Classification words	**Examples(Partial)**
Sensory	"Immature technology application or poor experience design may cause difficulties for consumers during the purchase and after-sales process. For example, the complex interface design of the platform's app or website makes it hard for users to find the desired products or quickly resolve complaints."
Interaction	"Tomatoes purchased through the e-commerce platform had not been shipped for a long time, and there was no delivery information."
Emotion	"Once, I bought some vegetables on an e-commerce platform, but upon receiving them, I found that some were already spoiled. I immediately contacted the platform's customer service, hoping to receive compensation or a solution. However, the response from customer service was very slow and the attitude was not positive. After some communication, I only received a partial refund, and the process was very cumbersome."
Security	"I bought chicken breast, and although the packaging was intact upon receipt, the meat became loose and lost its elasticity after thawing."

The proportional distribution analysis of critical incident categorization revealed significant heterogeneity across dimensions. As evidenced in Figure X, the 'Guarantee' domain emerged as predominant, comprising 68 incidents (37.86% prevalence rate), whereas the 'Interaction' category demonstrated minimal representation with 20 incidents (3.88%). Intermediate prevalence levels were observed in 'Emotion' (30.11%) and 'Sensory' (28.15%) classifications. Notably, 'Guarantee' maintained dual prominence across both valence spectrums - constituting not only the largest satisfactory incident cluster but also the most frequent source of user dissatisfaction. Empirical findings identified four principal grievance patterns within this domain: 1) quality discrepancies in perishable agricultural commodities (particularly freshness parameters), 2) substantial product-image incongruence, 3) protracted resolution timelines for compensation disputes, and 4) systemic

failures in quality assurance protocols. These operational deficiencies frequently manifested as price-quantity mismatches and substandard product condition upon delivery, collectively undermining service experience metrics.

5. Conclusions and Recommendations

The above study finds that logistics efficiency, product quality, information transparency, and after-sales response are core factors affecting consumer satisfaction. By analyzing consumers' core demands for fresh e-commerce services, this study proposes a three-party collaborative improvement framework with the platform as the coordination center, merchants as the executing entity, and consumers as the supervision driver. Through optimizing supply chain management, strengthening responsibility mechanisms, and building a trust ecosystem, the platform service quality can be effectively improved.

5.1 Logistics and Regulation Optimization Led by E-commerce Platforms

Introducing intelligent logistics systems is an important measure to improve logistics efficiency. The application of IoT technology provides strong support for solving logistics problems, such as temperature control sensors that can monitor temperature changes during cold chain transportation in real-time. If the temperature exceeds the suitable range, the system will promptly issue an alert, reminding relevant personnel to take measures to ensure the integrity of the cold chain and effectively avoid issues like 'seafood thawing.' Real-time path planning functions can also plan the optimal routes for delivery vehicles based on traffic conditions, shortening delivery times.

Developing transparent information platforms is crucial for enhancing consumer trust. Using block chain technology, the platform can develop product traceability features, allowing consumers to view the entire process data from planting, transportation, to quality inspection by scanning product QR codes. For example, for organic vegetables, consumers can clearly understand whether pesticides and fertilizers were used during planting, as well as environmental data such as temperature and humidity during transportation, thus having a more intuitive and accurate understanding of product quality, enhancing consumer trust, and effectively addressing issues like 'lack of organic certification.

5.2 Quality and Responsibility Reinforcement Driven by Merchants

Establishing standardized quality control processes is key to ensuring product quality. By establishing direct procurement cooperation from the origin, merchants can control product quality directly from the source. Implementing sorting and grading standards can effectively address issues like 'uneven apple sizes,' categorizing fresh products of different specifications and quality, improving the uniformity and consistency of products. Meanwhile, merchants can use live video broadcasts to show the sorting process, allowing consumers to have a direct understanding of the sorting standards and processes, increasing product transparency, and effectively avoiding issues like 'false advertising in live streams.

For perishable goods, merchants must innovate packaging technology. Custom packaging such as air column bags and anti-collision foam can provide effective protection during transportation for perishable fresh products like strawberries and eggs, reducing transportation losses. For example, using custom air column bag packaging for strawberries can effectively reduce collisions and squeezing between strawberries, lowering the damage rate of strawberries and avoiding issues like 'watermelon damage due to collisions.

5.3 Building a Trust Ecosystem with Consumer Participation

Designing a closed-loop process of 'one-click complaint—platform intervention—merchant rectification—consumer confirmation' allows timely and effective handling of consumer feedback. When encountering issues, consumers only need to perform a simple operation to file a one-click complaint, and the platform will quickly intervene, understanding the situation and urging the merchant to rectify it. After the merchant completes the rectification, the consumer confirms it, ensuring the issue is thoroughly resolved. At the same time, publicly disclosing the handling results allows consumers to understand the progress of issue resolution and serves as a warning to other merchants, effectively addressing issues like 'shortage in weight and measure.

Educational marketing through short videos and illustrated tutorials can popularize knowledge about fresh product storage and identification. For example, short videos can demonstrate 'mango ripening methods,' helping consumers learn how to properly ripen mangoes and extend their shelf life. Popularizing fresh product identification knowledge, such as how to identify fresh meat and vegetables, can enhance consumers' self-management capabilities, making them more adept at purchasing and using fresh products.

This study, by deeply analyzing consumers' core demands for fresh e-commerce services and combining the politeness framework, constructed a three-party collaborative improvement framework with the platform as the coordination center, merchants as the execution entity, and consumers as the supervision driver. The specific measures include technology-driven logistics optimization, enhancing delivery efficiency and

ensuring cold chain integrity through intelligent logistics systems; standardized quality control processes, controlling product quality from the source and throughout the process; transparent information sharing, enhancing consumer trust with technologies like block chain; and user-participation trust mechanisms, fully leveraging consumers' supervisory roles.

Future research can further explore the application of artificial intelligence in demand forecasting for fresh agricultural products. By analyzing consumer purchase history, browsing records, preferences, and other data with AI algorithms, merchants can accurately predict consumer demands, helping them to reasonably arrange procurement, production, and inventory, thus reducing operating costs and improving service quality. Additionally, the supporting role of policies and regulations in defining the responsibilities of the three parties also deserves in-depth research. By perfecting relevant policies and regulations, clearly defining the rights and obligations of platforms, merchants, and consumers in fresh e-commerce transactions, stronger legal protection for three-party collaborative improvement can be provided, achieving continuous enhancement of fresh e-commerce service quality.

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