Rural User Satisfaction Analysis of Hainan New Retail Model Based on The Internet Plus

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Abstract: 'Internet Plus Retail' represents a new economic form, that is, to give full play to the optimization and integration role of the Internet in the retail process, and to deeply integrate the innovative results of the Internet into all links of the retail industry to achieve information interaction. New Retail, based on the 'Internet Plus' background of China, is a retail model which runs through the e-commerce industry, logistics industry, and retail industry with the help of internet technology. New Retail industry in rural areas of Hainan province is restricted by many factors, which greatly affect the consumer experience of users. By constructing user satisfaction evaluation indicators, this paper uses fuzzy comprehensive evaluation method to analyze Hainan rural users' satisfaction with the New Retail model. The results show that the overall satisfaction is 'average'. Focus on 'Internet Plus' technology, this article puts forward corresponding suggestions, which provides much technical experience for the development of China's New Retail industry from the internet perspective including business model, logistics efficiency, platform construction, and service system.

Keywords: New Retail model; 'Internet Plus' technology; Satisfaction degree; Fuzzy comprehensive evaluation method; Importance-Performance Analysis.

1. Introduction

New Retail is a brand-new concept. Relying on the Internet, individuals and companies use big data, artificial intelligence, and other advanced technology to upgrade and transform the production, circulation, and sales processes of commodities, and deeply integrate online services, offline experience, and modern logistics to reshape the business structure and ecosystem. The characteristics of the New Retail model can be mainly understood from the technical and policy levels. From a technical perspective, Shi Zhengying[1] concluded that the characteristics of the New Retail model based on big data, a combination of online and offline, and a complete supply chain system. Li Zhouxing[2] pointed out the basic characteristics of New Retail: the combination of online services and offline experience, personalized

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customized services, advanced technology, and marketing models. From a policy perspective, Wang Xuguang[3] put forward three models of Internet Plus rural retail, namely, the government-led model, the enterprise-led model, and the peasant spontaneous model. He took these three models to complement each other, and creatively proposed an organic combination model which is leading by government, provided by enterprises, and participating by local citizens.

Based on the opinions of the above scholars, we can summarize the characteristics of the New Retail model: The New Retail model is a new type of combined format which runs through the e-commerce industry, logistics industry, and retail industry with online orders and offline distribution as its basic process based on a big data platform. The basic operation process is shown in Figure 1.

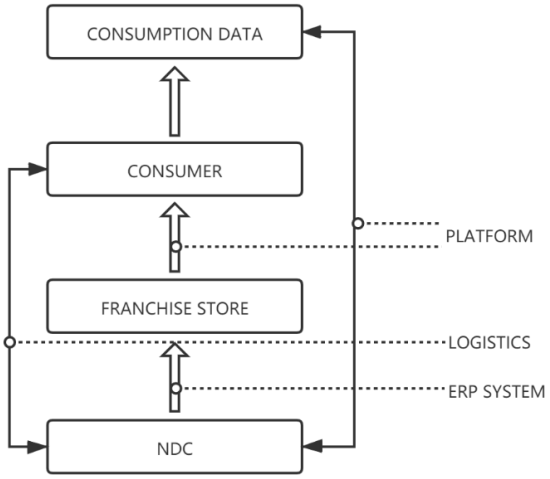

Figure 1. New Retail operation diagram

According to the 2020 Hainan Statistical Yearbook[4], the total retail sales of consumer goods of Hainan in 2019 reached 195.111 billion yuan, of which 163.996 billion yuan was in urban areas and only 31.115 billion yuan in rural areas. Among the registered population, the proportion of Hainan's urban population in 2019 was 40.38%, which means that though the rural population accounts for more than half of the registered population of Hainan, its total retail sales of consumer goods in 2019 is only 1/5 of that in urban areas. But at the same time, Hainan’s rural retail sales in 2019 increased by 116% compared to 2013, while the growth rate of Hainan’s urban retail sales from 2013 to 2019 was only 62%. It can be said that there is still a lot of room for growth in the development of the retail industry in rural areas of Hainan, and rural areas should develop New Retail model to promote consumption upgrades of rural residents.

Traditional business models, lagging supply systems and useless response methods have become problems in the circulation link for most rural markets. Traditional rural retail model can no longer meet the needs of rural residents for a better life, and the upgrade of rural residents' consumption is greatly restricted. In response to investigate the current problems in

the rural retail industry, different scholars have carried out research from different realms. By analyzing the current situation of retail store management in rural areas, Sun Zhidong[5] came up with four major characteristics of the current state: homogeneity, low threshold, lack of management awareness, and mutual independence. Furthermore, the four major characteristics are summarized into four major problems: overlapping economic production capacity, hindered development and poor stability, low-level managers, and narrow business scope. Shi Zhengying[1] carried out research from the perspective of logistics. She concluded that the current rural retail logistics has three problems including imperfect information network, complicated links, and defective supply chain system. Wang Xuguang and Hu Baoling[3] pointed out the four major problems that should be solved in the development of rural retail industry: high circulation costs, resource allocation gap, increased contradiction between retail supply, and unbalanced development of urban and rural retail.

During the two sessions in 2021, in response to the issue of rural revitalization, Suning Group Chairman Zhang Jindong[6] suggested: 'The most efficient and convenient way to release the vitality of rural consumption is to make full use of existing rural retail resources and help small and micro retailers to transform and upgrade through online and offline integration, which gives rural residents the opportunity to buy authentic products with high quality and low prices nearby.' The New Retail model largely solves the problems existing in the traditional rural retail industry and improves the consumption experience of rural residents. However, since the implementation of the New Retail model, due to the different regional characteristics, it will inevitably expose many problems, which will affect the satisfaction of rural residents. Taking Hainan Province as an example, firstly, the development of New Retail in Hainan is restricted by geographical conditions, because Hainan' is an island province, with inconvenient external transportation and unsmooth flow of goods; secondly, Hainan's infrastructure construction is weak and logistics efficiency is low; Third, Hainan's New Retail industry started late, developed slowly, and distributed unevenly in logistics outlets. Various factors restrict the development of Hainan's New Retail industry, which in turn affects user satisfaction.

Today, with the comprehensive deployment of large e-commerce companies such as Alibaba and JD.com in rural areas in Hainan, rural e-commerce in Hainan is at a stage of transition from rapid development to high-quality development. In this process, the main issues we are concerned about are: the problems encountered in the development of the New Retail model in rural areas in Hainan, the public's satisfaction with the New Retail model, and how to improve the Hainan rural New Retail model to enhance the public's consumer experience.

The research on user satisfaction of the New Retail model is mainly carried out from a micro perspective. The main direction of Chen Hongyu's[7] research is the contextual consumption experience of customers in the context of New Retail. Jin Yan[8] examines the impact of New Retail service quality on customer citizenship behavior from the perspective of service quality. This article believes that the information reflected by the micro-level research is only one-sided, and the comprehensive evaluation of the macro-level can more comprehensively discover problems. Based on the existing research and theoretical models, this paper establishes the evaluation index of the Hainan rural New Retail e-commerce model from the perspective of public satisfaction, and uses the fuzzy comprehensive evaluation method to measure the current satisfaction level of Hainan rural New Retail e-commerce model. At the same time, Importance-Performance Analysis is used to conduct a quantitative and qualitative

analysis. The most authentic consumption experience of rural residents can help to discover the current plight of the retail industry in Hainan's rural areas, give corresponding suggestions to help the development of the New Retail e-commerce model in Hainan's rural areas, and provide reference experience for the development of the China's rural retail industry. Today, the main task of China's rural undertakings has also smoothly shifted from poverty reduction to rural revitalization. The implementation of the rural revitalization strategy is to speed up the modernization of agriculture and rural life, and realize the overall upgrading of agriculture and rural life. The final goal is to enable rural residents to live a better life. Therefore, it is of great significance to increase the happiness of rural residents by upgrading the quality of the rural retail industry.

2. II. Specific research process

2.1 Construction of evaluation indicators

The first-level evaluation indicators are based on the American Customer Satisfaction Index Model (ASCI), which is widely used to evaluate user satisfaction in the international community. Combined with the characteristics of this article to improve, five first-level evaluation indicators are set: perceived image, perceived hardware quality, perceived software quality, perceived service quality, and perceived value.

The second-level evaluation indicators are based on the 'Opinions on Promoting the Innovation and Transformation of Physical Retailing' issued by the General Office of the State Council of China[9]. At the same time, the construction of the index also integrates the views of different scholars. For example: Chen Jiwei[10] studied the influencing factors during the development of rural retail business based on the perspective of rural revitalization. From the perspectives of economic scale and organizational structure, the six dimensions of orientation including product quality, brand goodwill, price level, competitive relationship, supplier power and policy, are respectively divided into positive and negative roles. Shi Zhengying[1] proposed strengthening the construction of information platforms, smart warehouses, and a complete supply chain system to improve the consumer experience. Duan Yanhui[11] focused on the three aspects of information channels, promotion platforms, and logistics efficiency when studying the development approaches to meet the individual needs of rural users in the New Retail era.

The first-level indicators and the second-level indicators are combined to form a user satisfaction evaluation system for the Hainan rural New Retail e-commerce model.

Table 1. Evaluation system of New Retail E-commerce model user satisfaction in Hainan rural areas

First level indicator	Second level indicator
Perceived image	Store decoration
	Brand awareness
	Staff dress code

Perceived hardware quality	Store merchandise types
	Logistics efficiency
	Product quality
Perceived software quality	Platform operability
	Platform booking process
	Platform Commodities type
	Platform activity satisfaction
Perceived service quality	Staff service attitude
	Shopping process
	Member system
	After-sales service
	Personalized service
	Business hours
Perceived value	Product cost performance
	Willingness to consume

2.2 Questionnaire distribution process

This questionnaire is for villages and towns in Hainan Province that involve New Retail. Cooperative units include many mature Internet retail companies such as Cuntao. 550 questionnaires were distributed and 514 were recovered, with a recovery rate of 93.5%. Among them, 10 are invalid questionnaires. For the convenience of analysis, without affecting the results, after removing 14 questionnaires (including 4 duplicate questionnaires), there are 500 copies left. For these 500 questionnaires, we used the fuzzy comprehensive evaluation method to analyze the data.

2.3 Analytical method

The fuzzy comprehensive evaluation method was first proposed by American automatic control expert Chad in 1965. It is a comprehensive evaluation method based on fuzzy mathematics. The fuzzy comprehensive evaluation method has great advantages in dealing with the problems of qualitative, uncertain information, and can make up for the shortcomings of individual evaluation methods. The basic idea of the fuzzy comprehensive evaluation method is: based on determining the evaluation factors, the evaluation grades of the indicators and the weights of each indicator, the fuzzy sets (formulas) are used to describe the fuzzy boundaries of the factors and indicators with the degree of membership, and the fuzzy judgment matrix is constructed. Through the multi-layer compound operation, the level of the evaluation object is finally determined[12]. The specific operation steps are as follows.

Determine the influencing factor set U and the evaluation set V. Where U means that n evaluation elements are selected, $U = (U_1, U_2, \cdots, U_n)$; the evaluation set V represents the set of evaluation levels, $V = (V_1, V_2, V_3, V_4, V_5)$. This article uses the Likert five-level scale, so $m = 5$. At the same time determine the weight W of each influencing factor.

The scoring membership function and comprehensive evaluation matrix R of each factor are established, the membership degree and R are calculated, and the fuzzy set is obtained.

The fuzzy comprehensive evaluation set B is obtained through the comprehensive evaluation matrix R, $B = W \times R = (b_1, b_2, b_3, \cdots, b_i)$. b_i is the $i-th$ membership degree in the fuzzy comprehensive evaluation set, and there are two commonly used calculation models.

Model I:

$$b_j = \bigvee_{i=1}^{n} (g_i \wedge r_{ij}), (j = 1,2, \cdots, m) \tag{1}$$

Model II:

$$b_j = \sum_{i=1}^{n} g_i r_{ij}, (j = 1,2, \cdots, m) \tag{2}$$

Model I adopts the $M(\wedge,\vee)$ algorithm, which takes the small $(\wedge)$ and then the large $(\vee)$ for matrix synthesis calculation. Model II adopts the $M(\cdot,+)$ algorithm, and performs matrix synthesis calculation by multiplying first and then adding. Model II comprehensively considers the influence of W_i and R_{ij}, and retains all the information. The actual evaluation effect of Model II is better, so the second calculation model is selected in this paper.

Use fuzzy comprehensive evaluation set B and measurement scale H to calculate the comprehensive evaluation score E of the evaluation object:

$$E = B \times H \tag{3}$$

Among them,

$$H = \begin{pmatrix} \text{very dissatisfied, dissatisfied, average,} \\ \text{satisfied, very satisfied} \end{pmatrix}$$

$$= (1,2,3,4,5)$$

In this paper, the fuzzy comprehensive evaluation method is used to first obtain the importance weights of the criterion layer and the indicator layer, and then through the two-level fuzzy comprehensive evaluation, the fuzzy comprehensive evaluation scores of the satisfaction of the target layer, the criterion layer and the indicator layer are finally obtained.

The first layer is the user satisfaction evaluation system of Hainan's rural New Retail e-commerce model.

The second layer is the criterion layer, which is composed of various factors obtained by factor analysis.

The third layer is the indicator layer, including a total of 18 indicators, which is the result of analyzing the second layer.

First, U (criteria layer) is obtained through factor analysis, including five criterion layers of perceived image, perceived hardware quality, perceived software quality, perceived service quality, and perceived value. Therefore $U = (U_i)(i = 1,2,3,4,5)$, where each U_i is composed of indicator layer (U_{ij}). Secondly, sort out the results of the questionnaire and calculate R_i $(i = 1,2,3,4,5)$ (the degree of membership) of U_{ij}, that is, the proportion of the number of people in the evaluation set V to the total number of people.

Finally, use the fuzzy scoring method to score, according to the five levels of the comment set: $V = (V_1, V_2, V_3, V_4, V_5)$, the importance is from low to high, and they are assigned 1,2,3,4, and 5 respectively.

2.4 Data processing

2.4.1 Reliability and validity test

Reliability is used to test the truth and consistency of the questionnaire conclusions. The reliability coefficient is positively correlated with the test result. $Cronbach\alpha^{\alpha}$ is commonly used to test the consistency of all questions in the questionnaire. In this paper, SPSS 23 is used to analyze the reliability of the obtained questionnaire, and the result is that $Cronbach^{\alpha} = 0.855$ which is greater than 0.8, indicating that the reliability is very good.

Validity analysis refers to the level of the survey results reflecting the content to be tested, and factor analysis is a rigorous and commonly used reliability test method.

2.4.2 Determine the weight of the evaluation indicator

2.4.2.1 Calculate the importance weight W_i of the criterion layer U_i

The factor analysis sums up 5 common factors. The variance explanation rates of the 5 common factors after rotation are 26.398%, 20.869%, 14.407%, 12.447%, 9.056%, and the cumulative variance rate after rotation is 83.177%. The weights can be obtained by dividing the respective variance explanation rates of the 5 common factors by the cumulative variance explanation rates. Therefore, the weights of the 5 main factors are 0.3174, 0.2509, 0.1732, 0.1496, and 0.1089.

2.4.2.2 Calculate the importance weight W_{ij} of the indicator layer U_{ij}

The factor evaluation includes five levels: very dissatisfied, dissatisfied, fair, satisfied, and very satisfied. Perform standardized calculations on these levels, and calculate the membership value R after eliminating the dimensions, as shown in Table 2. For example, the evaluation frequencies of the five levels of store decoration U_{11} are 149, 151, 77, 105, and 18, and the corresponding membership degrees are 0.298, 0.302, 0.154, 0.210, and 0.036. According to the membership degree of the indicator layer, the score of each indicator can be calculated. The calculation formula is $P(U_{ij}) = 1P_1 + 2P_2 + 3P_3 + 4P_4 + 5P_5$.

Table 2. Membership degree evaluation form

Indicator layer U_{ij}	Points				
	1	2	3	4	5

Store decoration	0.298	0.302	0.154	0.210	0.036
Brand awareness	0.296	0.288	0.174	0.214	0.028
Staff dress code	0.038	0.262	0.236	0.262	0.202
Store merchandise types	0.030	0.222	0.216	0.262	0.270
Logistics efficiency	0.264	0.264	0.248	0.178	0.046
Product quality	0.018	0.222	0.230	0.268	0.262
Platform operability	0.036	0.254	0.280	0.220	0.210
Platform booking process	0.040	0.274	0.230	0.252	0.204
Platform Commodities type	0.228	0.268	0.242	0.252	0.010
Platform activity satisfaction	0.056	0.270	0.220	0.264	0.190
Staff service attitude	0.028	0.236	0.270	0.238	0.228
Shopping process	0.028	0.240	0.280	0.210	0.242
Member system	0.028	0.242	0.284	0.212	0.234
After-sales service	0.026	0.206	0.304	0.248	0.216
Personalized service	0.202	0.262	0.284	0.182	0.070
Business hours	0.032	0.316	0.208	0.222	0.222
Product cost performance	0.076	0.318	0.216	0.218	0.172
Willingness to consume	0.232	0.324	0.258	0.140	0.046

Then, calculate the coefficient of each indicator, that is, the load coefficient value of the rotated component matrix table divided by the SQRT (corresponding characteristic root). For example, the load factor corresponding to store decoration U_{11} is 0.053, 0.181, 0.908, 0.150, 0.065, which are divided by SQRT (4.752), SQRT (3.756), SQRT (2.593), SQRT (2.240), SQRT (1.630) to obtain a coefficient of 0.024, 0.093, 0.564, 0.100, 0.051. Other indicators can be calculated in the same way. As Table 3 shows.

Table 3. Indicator coefficient calculation result

Indicator layer	Points				
	1	2	3	4	5
Store decoration	0.024	0.093	0.564	0.100	0.051
Brand awareness	0.026	0.089	0.565	0.078	0.047
Staff dress code	0.082	0.005	0.519	0.016	0.168
Store merchandise types	0.099	0.010	0.102	0.585	0.149
Logistics efficiency	0.056	0.194	0.046	0.421	0.130
Product quality	0.101	0.006	0.106	0.583	0.126
Platform operability	0.078	0.460	0.065	0.030	0.148
Platform booking process	0.091	0.456	0.078	0.058	0.100
Platform Commodities type	0.057	0.458	0.047	0.032	0.033
Platform activity satisfaction	0.086	0.459	0.067	0.067	0.128

Staff service attitude	0.419	0.038	0.080	0.076	0.026
Shopping process	0.415	0.083	0.054	0.076	0.005
Member system	0.415	0.087	0.047	0.069	0.008
After-sales service	0.415	0.054	0.023	0.097	0.036
Personalized service	0.277	0.234	0.079	0.159	0.152
Business hours	0.418	0.064	0.073	0.061	0.001
Product cost performance	0.015	0.142	0.135	0.199	0.617
Willingness to consume	0.001	0.090	0.100	0.147	0.676

Secondly, the weight of each factor is multiplied by the corresponding coefficient and added, and the normalized value is W_{ij} (the indicator layer weight of U_{ij}). Take U_{11} as an example, the column formula is 0.298×0.053+0.302×0.181+0.154×0.908+0.210×0.150+0.036×0.051, the result is 0.149, and then the result is normalized, so $W_{11} = 0.346$. By analogy, the specific weight W_{ij} of other indicators is calculated. As Table 4 shows for details.

Table 4. Evaluation indicator weight table

Criterion layer U_i	Criterion layer importance weights W_i	Indicator layer U_{ij}	Indicator layer importance weights W_{ij}	Total
Perceived image	0.317	Store decoration	0.346	1
		Brand awareness	0.336	
		Staff dress code	0.319	
Perceived hardware quality	0.251	Store merchandise types	0.338	1
		Logistics efficiency	0.330	
		Product quality	0.332	
Perceived software quality	0.173	Platform operability	0.254	1
		Platform booking process	0.261	
		Platform Commodities type	0.221	
		Platform activity satisfaction	0.263	
Perceived service quality	0.150	Staff service attitude	0.161	1
		Shopping process	0.165	
		Member system	0.164	
		After-sales service	0.159	
		Personalized service	0.190	

		Business hours	0.162	
Perceived value	0.109	Product cost performance	0.542	1
		Willingness to consume	0.458	

2.4.3 First-level fuzzy comprehensive evaluation

The fuzzy comprehensive evaluation model is used to calculate the evaluation matrices $R_1 - R_5$ of the five element layers. The first step is to establish a criterion-level factor evaluation matrix and conduct a first-level fuzzy comprehensive evaluation. The evaluation matrix of each criterion of $R_1; R_2; R_3; R_4; R_5$ is calculated as follows:

$$R_1 = \begin{bmatrix} 0.298 & 0.302 & 0.154 & 0.210 & 0.036 \\ 0.296 & 0.288 & 0.174 & 0.214 & 0.028 \\ 0.038 & 0.262 & 0.236 & 0.262 & 0.202 \end{bmatrix}$$

$$R_2 = \begin{bmatrix} 0.030 & 0.222 & 0.216 & 0.262 & 0.270 \\ 0.264 & 0.264 & 0.248 & 0.178 & 0.046 \\ 0.018 & 0.222 & 0.230 & 0.268 & 0.262 \end{bmatrix}$$

$$R_3 = \begin{bmatrix} 0.036 & 0.254 & 0.280 & 0.220 & 0.210 \\ 0.040 & 0.274 & 0.230 & 0.252 & 0.204 \\ 0.228 & 0.268 & 0.242 & 0.252 & 0.010 \\ 0.056 & 0.270 & 0.220 & 0.264 & 0.190 \end{bmatrix}$$

$$R_4 = \begin{bmatrix} 0.028 & 0.236 & 0.270 & 0.238 & 0.228 \\ 0.028 & 0.240 & 0.280 & 0.210 & 0.242 \\ 0.028 & 0.242 & 0.284 & 0.212 & 0.234 \\ 0.026 & 0.206 & 0.304 & 0.248 & 0.216 \\ 0.202 & 0.262 & 0.284 & 0.182 & 0.070 \\ 0.032 & 0.316 & 0.208 & 0.222 & 0.222 \end{bmatrix}$$

$$R_5 = \begin{bmatrix} 0.076 & 0.318 & 0.216 & 0.218 & 0.172 \\ 0.232 & 0.324 & 0.258 & 0.140 & 0.046 \end{bmatrix}$$

Use the calculation model II (formula 2) to calculate the fuzzy comprehensive evaluation set B of the indicator layer.

$$B_1 = W_1 \times R_1 = (0.214, 0.285, 0.187, 0.228, 0.086)$$

$$B_2 = W_2 \times R_2 = (0.103, 0.236, 0.231, 0.236, 0.194)$$

$$B_3 = W_3 \times R_3 = (0.085, 0.267, 0.243, 0.247, 0.159)$$

$$B_4 = W_4 \times R_4 = (0.614, 0.251, 0.272, 0.218, 0.198)$$

$$B_5 = W_5 \times R_5 = (0.148, 0.321, 0.235, 0.182, 0.114)$$

2.4.4. Second-level fuzzy comprehensive evaluation

Based on the first-level fuzzy comprehensive evaluation, the first-level fuzzy evaluation value B_i of each factor is calculated, so the second-level fuzzy comprehensive evaluation is:

$$Y_i = W_i \times B_i$$

$$= (0.317,0.251,0.173,0.150,0.109) \times$$

$$\begin{bmatrix} 0.214 & 0.285 & 0.187 & 0.228 & 0.086 \\ 0.103 & 0.236 & 0.231 & 0.236 & 0.194 \\ 0.085 & 0.267 & 0.243 & 0.247 & 0.159 \\ 0.614 & 0.251 & 0.272 & 0.218 & 0.198 \\ 0.148 & 0.321 & 0.235 & 0.182 & 0.114 \end{bmatrix}$$

$$= (0.134,0.268,0.226,0.227,0.146)$$

2.4.5 Final comprehensive evaluation value

$$E = \sum W_i \times B_i (i = 1,2,3,\cdots,n)$$

$$= 0.134 \times 1 + 0.268 \times 2 + 0.226 \times 3 + 0.227 \times 4 + 0.146 \times 5$$

$$= 2.982$$

By analogy, we get the satisfaction value of criterion layer and indicator layer. As Table 5 shows.

Table 5. Comprehensive evaluation results

Criterion layer U_i	Criterion layer Satisfaction value	Rank	Indicator layer U_{ij}	Indicator layer Satisfaction value	Rank
Perceived image	2.687	5	Store decoration	2.384	18
			Brand awareness	2.390	17
			Staff dress code	3.328	7
Perceived hardware quality	3.181	2	Store merchandise types	3.520	2
			Logistics efficiency	2.478	15
			Product quality	3.534	1
Perceived software quality	3.129	3	Platform operability	3.314	8
			Platform booking process	3.306	9
			Platform Commodities type	2.548	14
			Platform activity satisfaction	3.262	11

Perceived service quality	3.241	1	Staff service attitude	3.402	4
			Shopping process	3.398	5
			Member system	3.382	6
			After-sales service	3.422	3
			Personalized service	2.656	13
			Business hours	3.286	10
Perceived value	2.795	4	Product cost performance	3.092	12
			Willingness to consume	2.444	16

3. III. Result analysis

The five-level Likert evaluation index is divided into five intervals [0,1], (1,2], (2,3], (3,4], (4,5), corresponding to ‘very dissatisfied ‘, ‘unsatisfied’, ‘average’, ‘satisfied’, ‘very satisfied’. The comprehensive score of user satisfaction for Hainan's New Retail e-commerce model is 2.982, which is rated as ‘fair’. However, since 2.982 is close to 3, the comprehensive evaluation should be above average.

From the criterion layer, perceived service quality (3.241)>perceived hardware quality (3.181)>perceived software quality (3.129). These three criteria are all greater than 3, so they are evaluated as ‘satisfied’. Perceived value (2.795)>perceived image (2.687), these two criteria are both less than 3, and the evaluation is ‘average’.

From the perspective of the indicator layer, in order to interpret the results more intuitively, we conducted an Importance-Performance Analysis on the indicator layer. As Figure 2 shows.

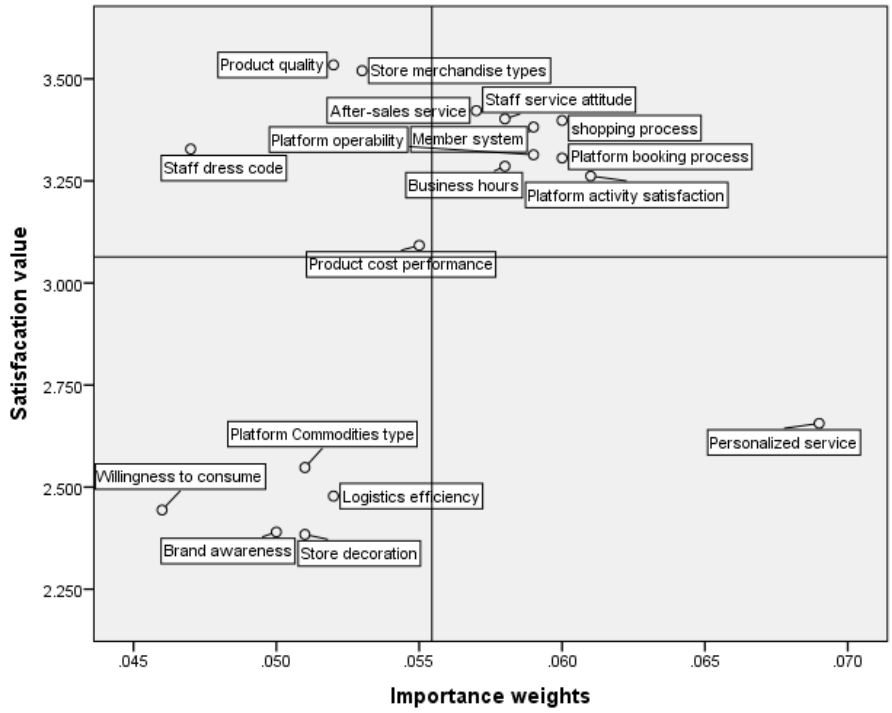

Figure 2. Importance-Performance Analysis chart of Hainan's rural New Retail e-commerce model

Quadrant I is the superior area, that is, the area with both high importance and satisfaction.8 indicators (Shopping process, staff service attitude, after-sales service, member system, platform operability, business hours, platform activity, platform booking process) are in this area, indicating that the public believes these five indicators are important and satisfactory. These items are the basic elements of the New Retail operating system, which can reflect the user's intuitive experience of the New Retail enterprise, and have a significant impact on the user's experience. Thanks to the continuous improvement of basic elements by New Retail companies, Hainan New Retail companies have now formed a complete operating system, including online, offline, pre-sales and after-sales.

Quadrant II is the retention zone, the area with high satisfaction but low importance.4 indicators (Product quality, store merchandise types, staff dress code, product cost performance) are relatively affirmative, but these indicators are easy to be ignored because of their low importance. The improvement of indicators in this area can promote the improvement of public satisfaction and can be used as an important auxiliary factor.

Quadrant III is the opportunity zone, that is, the important and low satisfaction zone.5 indicators (Platform commodities type, willingness to consume, logistics efficiency, brand awareness, store decoration) need to be focused on, but they are not factors that are currently being dealt with urgently. These five indicators reflect three problems. First, the current degree of chaining of New Retail enterprises in rural areas in Hainan is not high, and they are still in a state of extensive operation. At the same time, their levels are uneven, which will inevitably

affect consumers' sense of experience; second, the inconvenient infrastructure of Hainan will have an impact on logistics efficiency, which in turn will affect user satisfaction. Third, the types of goods cannot fully meet the needs of rural residents as user needs are becoming increasingly diversified.

Quadrant IV is the repair area, that is, an area of high importance but not satisfactory to the public. There is only one indicator of personalized service in this area. This area is a key factor area for improving public satisfaction which should be taken as a key construction and improvement. According to the survey, Hainan's population composition is relatively complicated, with many ethnic groups, and the customs of different villages are divided. With the development of economy and society, the consumption level of rural residents is also increasing, and the demand for personalized service is also growing. Therefore, the development of personalized service is not only a respect for different living habits, but also an important way to improve the consumption experience of Hainan rural residents. However, few rural New Retail enterprises in Hainan can provide personalized service, which cannot meet diversified consumer needs.

4. Conclusions

Comprehensive fuzzy analysis results show that Hainan rural users' overall satisfaction evaluation with the New Retail model is average. The Importance-Performance Analysis results show that the indicators evaluated as average and below (with a point lower than 3) are: Store decoration, Brand awareness, Willingness to consume, Logistics efficiency, Platform Commodities type, and Personalized service. The results prove that the current Hainan New Retail model needs to improve these six aspects in order to increase user satisfaction.

The results of this paper are combined with the fuzzy comprehensive analysis method and Importance-Performance Analysis, which provide solutions for the research of such problem. At the same time, based on the research results of predecessors, this article hopes to promote the renewal of the research process in the domain of such problem. By looking for low-point indicators, we can target market 'pain points' and prescribe the right 'medicine'. This article discovers the main problems in Hainan's current New Retail layout. Furthermore, this article gives relevant suggestions from the perspective of 'Internet Plus' technology, as shown below.

4.1 'Internet plus store': realize chain operation.

New Retail enterprises should integrate resources, change the original extensive business model, and form a unified wholesale, logistics, and retail system. Chain operation can not only improve the operating standards of stores, but also ensure the supply of goods. For chain stores, New Retail companies can provide a unified decoration style and a unified business model to enhance their competitiveness through brand and chain effects. At the same time, data monitoring of affiliated stores is carried out to facilitate timely replenishment of goods[13].

4.2 'Internet plus logistics': strengthen infrastructure construction to improve logistics efficiency.

Strengthen the construction of rural infrastructure and eliminate the last mile problem of rural transportation. The government should continue to strengthen the construction of rural road

facilities, and at the same time encrypt logistics outlets, and move the last level of logistics outlets to the countryside. For another part, all channels should be opened, a unified logistics distribution platform should be established, and the micro-logistics model should be used for reference to reduce logistics costs and improve distribution efficiency[14].

4.3 'Internet plus platform': use big data and cloud computing to build a smart platform.

In order to make full use of existing information resources, it is necessary to establish a new logistics integration platform. the platform can realize the sharing and integration of resources and information, which puts forward higher requirements for the integrity and sensitivity of the platform. Specifically, it is to build a resource integration platform as the core of the new logistics operation. The platform needs to cover enterprise resources, information data, finance, technology, and other elements to realize the effective docking of enterprise information and make full use of the advantages brought by data. Using big data technology to analyze huge order information, enterprises can get information about the age group, purchasing preferences, purchasing ability and other information of consumers in the region. Use the analysis results to predict the consumption behavior of consumers in the region, plan the allocation of goods, and reserve the goods reasonably in advance. Go to the store or warehouse to achieve immediate order response and improve delivery efficiency[15].

4.4 'Internet plus service': improve personalized service system.

A large consumer group is the key to the operation of retail enterprises which can be realized by improving customer satisfaction and loyalty. Use preferential strategies to expand traffic, develop personalized services to attract more consumers.; reform services need to cater to consumers Preference for publicity; make full use of the advantages of stores, interact with consumers, and let consumers participate in upgrading and reform activities[16].

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