

Personalized Marketing's Role in Shaping Consumer Confidence in Privacy Security within the Sales Sector

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Abstract. The impact of personalized marketing strategies on consumer privacy and information security evolved in the sales industry in the era of big data has increasingly become an issue that cannot be ignored in the development process of enterprises in the sales industry. Based on the sales industry, this paper selects consumer trust and consumer participation as mediating variables to study the influence of personalized marketing strategies in the sales industry on consumer confidence in privacy information security. The results of the study show that personalized marketing strategies in the sales industry have a significant negative impact on consumer confidence in privacy information security, and a significant positive impact on the mediating variables of consumer trust and consumer participation. The study also draws a series of conclusions based on the degree of linear influence, such as that personalized marketing strategies are more difficult to win intrinsic consumer trust than behavior trust, and that intrinsic consumer trust leads to greater consumer participation than behavior trust. The paper concludes with recommendations for innovating and improving the privacy protection system, strengthening the whole process of personalized marketing and users themselves protecting the privacy of their own, as well as a prospect for future research to further improve the research system and the model.

Keywords: Personalized Marketing; Consumer Privacy; Information Security; Sales Industry.

1. Introduction

Entering the era of big data, big data is accelerating to change the way of operation of enterprises in the sales industry due to its characteristics of massive, high-speed, diverse and sparse value [1]. In practice, big data analytics is increasingly valued by enterprises for its ability to improve their dynamic capabilities to cope with changing market environments, to improve their profitability in more competitive business environments, and to improve their competitiveness by improving their customer relationship management capabilities [2-4]. The role of personalized marketing has become increasingly prominent with the addition of big data, with 5-15% of contemporary business revenue growth directly attributable to the successful implementation of personalized marketing, while marketing efficiency within a single channel has increased by 10-30% [5]. Accordingly, the sales industry has been using big data to carry out personalized marketing in order to seize market opportunities, which has also resulted in the traditional sales industry losing its competitive advantage to a certain extent due to the universality of its marketing. Through the development of personalized marketing, enterprises can more accurately locate customer demand, so as to open up the supply and demand channels and realize the value of the enterprise itself. At the same time, personalized marketing in the era of big data requires the use of various types of data, which may have an impact on consumer information security. Therefore, this paper discusses the impact of personalized marketing on consumer confidence in privacy information security by adding it to the system of personalized marketing's impact on consumers.

2. Literature Review

Prior to this, research on personalized marketing in the sales industry has focused on the relationship between personalized marketing and intrinsic consumer acceptance along with consumer satisfaction and loyalty. In terms of the relationship with consumers' intrinsic acceptance, Han Cai and Abbas Mardani argued that broadening the coverage of enterprises' personalized marketing is an

important aspect of reducing consumers' resistance, and that enterprises should make more efforts in grasping users' needs, and achieve precise marketing to meet consumers' needs while broadening coverage, which elaborated the relationship between personalized marketing and consumers' intrinsic resistance emotions [6]. In terms of the relationship with consumer satisfaction and loyalty, Wonjoo Yun and Nicole Hanson used financial services marketing as an example and analyzed it using a seemingly uncorrelated regression model (SUR), arguing that the implementation of precision marketing campaigns is needed to improve customer loyalty and satisfaction, exemplifying the relationship between personalized marketing and consumer loyalty, and arguing that personalized services are the only type of marketing positively and significantly associated with customer loyalty and satisfaction positively and significantly associated with marketing activities [7]. Similarly, some scholars believe that good personalized product design enhances consumer loyalty to the brand in the marketing process, while the stronger the consumer trust, the higher their loyalty [8, 9]. It can be seen that previous research by scholars is biased towards the analysis of the impact of personalized marketing on consumers' internal psychology.

At the same time, there are some scholars based on the construction of a more effective and complete marketing system. Vasilis Theoharakis, Yuyan Zheng and Long Zhang took strategic marketing planning as a kind of dynamic ability, perception mechanism and seize mechanism to reconstruct the strategic planning system, in order to cope with the dilemma of the traditional marketing in the face of today's market environment [10].

Through the above analysis, most scholars have studied the relationship between personalized marketing, consumers' intrinsic acceptance, consumer loyalty and satisfaction, as well as the construction of the sales system. While fewer have directly explored the relationship with consumer confidence in privacy information security. Therefore, based on the sales industry, this paper will set up a series of variables, through the distribution of questionnaires and the establishment of relevant analytical models, to study the impact of personalized marketing in the sales industry on consumer confidence in privacy information security, to provide guidance for the protection of consumers' privacy and the construction of compliance by enterprises.

3. Methodology

3.1. Questionnaire

Based on the content of the study, this paper adopts the form of questionnaire to collect data in order to explore the specific impact of personalized marketing strategies in the sales industry on the security of consumer privacy information. In order to obtain relatively fair and objective data, the questionnaire was set up from different perspectives with a total of 31 questions, and was distributed through the Internet to people in different provinces and cities across the country, and finally 351 valid questionnaires were collected, and the samples basically conformed to normal distribution.

In terms of the content of the questionnaire, the questionnaire was divided into four main structural variables, namely, personalized marketing strategies in the sales industry, consumer trust, and consumer participation and consumer confidence in privacy information security. Consumer trust is subdivided into intrinsic trust and behavior trust, and consumer confidence in privacy information security is subdivided into consumer confidence in sensitive privacy information security and consumer confidence in general privacy information security. Consumer trust and consumer participation are used as mediator variables in the study to assist in deriving the impact of personalized marketing in the sales industry on consumer confidence in privacy information security.

In order to ensure the superiority of the fitted model and the validity of hypothesis testing in this study, this paper adopts the Cronbach coefficient to analyse the reliability of structural variables. As one of the common ways of reliability testing, the Cronbach coefficient is generally considered to have an alpha coefficient of 0.7 and above, which represents a relatively high reliability of the variable. The results of relevant analysis in this paper are shown in Table 1.

Table 1. Confidence analysis.

Variable	N of items	Cronbach's Alpha
Personalized marketing strategies in the sales industry	5	.893
Consumer trust	10	.941
Consumer participation	5	.903
Consumer confidence in privacy information security	11	.961

According to the test results, the alpha coefficients of the four structural variables, namely, personalized marketing strategies in the sales industry, consumer trust, consumer participation and consumer confidence in privacy information security, are 0.893, 0.941, 0.903 and 0.961 respectively. Three of them are more than 0.9, which indicates that the variables have a high degree of credibility and consistency, and can be analyzed in the next step.

Validity test is usually used to test the validity of the question set. In this paper, SPSS 27.0 was used to conduct validity test and factor analysis by KMO measure and Bartlett's spherical test scale. It is generally considered that the validity of the questionnaire is acceptable if the KMO value is greater than 0.6 and under the condition of significance. The results of the correlation analysis are shown in Table 2.

Table 2. KMO and Bartlett's test.

K-M-O Measure of Sampling Adequacy		0.978
Bartlett's Test of Sphericity	Approximate Cardinality	9483.174
	df	465
	Significance	0.000

According to the test results, the overall validity of the questionnaire has a KMO value of 0.978 and the significance of the Bartlett's Spherical Test Scale is 0.000, which indicates that the reliability of the collected data is good enough to be used for further analysis in the subsequent period.

3.2. Modelling

The meanings of the variables and subsequent numbers used in this paper are shown in Table 3 below. Because of the long characters of the variables in this paper, symbolic abbreviations were made for some of the variable names. The questionnaire was quantitatively analyses using a five-point Likert scale, and the numerical settings of the questions are also explained in Table 3.

Table 3. Assignment of variables.

Variable name	symbol	Variable definition and assignment
Gender	Gender	Male=1, Female=2
Age	Age	18-year-old and below=1, 18-24 years old=2, 25-34 years old=3, 35-44 years old=4, 45-54 years old=5, 55-year-old and above=6
Education	Education	Junior high and below=1, Senior high=2, Undergraduate=3, Master=4, Doctor and above=5
Occupation	Occupation	Student=1, Education=2, Medical Care=3, Business and Finance=4, Technology=5, Private, Self-employed=6, others=7
Personalized marketing strategies in the sales industry	PMS	Strongly disagree=1, Disagree=2, General=3, Agree=4, Strongly agree=5
Consumer trust	Trust	Strongly disagree=1, Disagree=2, General=3, Agree=4, Strongly agree=5
Consumer intrinsic trust	IT	Strongly disagree=1, Disagree=2, General=3, Agree=4, Strongly agree=5
Consumer behavior trust	BT	Strongly disagree=1, Disagree=2, General=3, Agree=4, Strongly agree=5

Consumer participation	Participation	Strongly disagree=1, Disagree=2, General=3, Agree=4, Strongly agree=5
Consumer confidence in privacy information security	PC	Strongly disagree=1, Disagree=2, General=3, Agree=4, Strongly agree=5
Consumer confidence in sensitive privacy information security	SPC	Strongly disagree=1, Disagree=2, General=3, Agree=4, Strongly agree=5
Consumer confidence in general privacy information security	GPC	Strongly disagree=1, Disagree=2, General=3, Agree=4, Strongly agree=5

In terms of constructing the model, as shown in Figure 1, the impact of personalized marketing strategies in the sales industry on consumer trust is studied first, then the impact of consumer trust on consumer participation is studied, then the impact of consumer participation on consumer confidence in privacy information security is studied, and finally it comes back to the study of personalized marketing strategies in the sales industry on consumer confidence in privacy information security. The multivariate linear regression and the univariate Linear regression is used to validate the relationship between the structural variables by stepwise regression on the article, and the core of the research is the impact of personalized marketing strategies in the sales industry on consumer confidence in privacy information security.

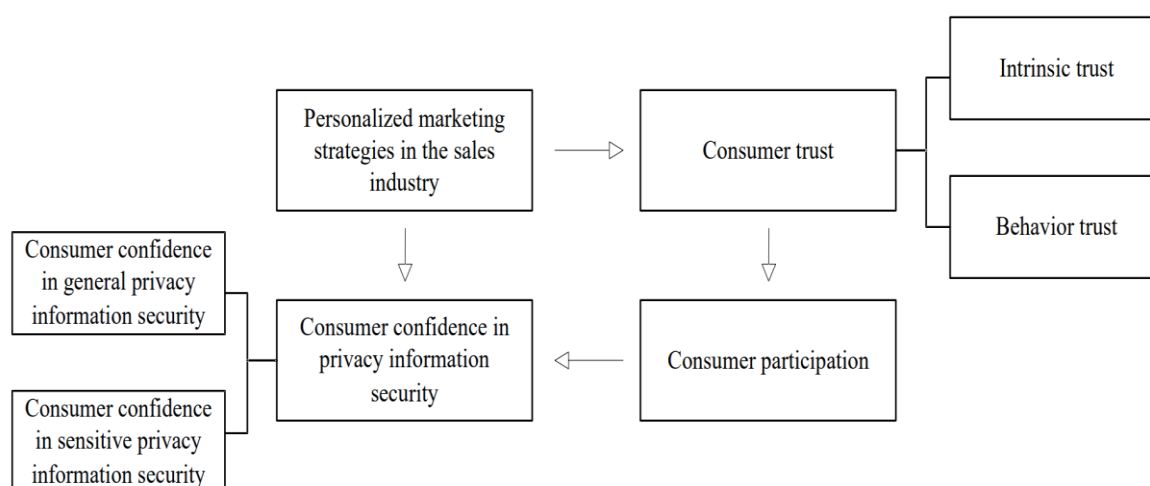


Fig 1. Research model.

Firstly, in the process of studying the impact of personalized marketing strategies in the sales industry on consumer trust, one-way linear regression equations (1) (2) were constructed for analysis.

$$IT_{i,t} = \alpha_0 + \alpha_1 PMS_{i,t} \quad (1)$$

$$BT_{i,t} = \beta_0 + \beta_1 PMS_{i,t} \quad (2)$$

The dependent variables IT and BT in the formula represent intrinsic trust and behavior trust respectively, and the two models are used to investigate the extent of the impact of PMS, i.e., personalized marketing strategies in the sales industry, on consumers' intrinsic trust and consumers' behavior trust respectively.

In the study of the effect of consumer trust on consumer participation, multiple linear regression equation (3) was constructed for analysis.

$$Part_{i,t} = \alpha_0 + \alpha_1 IT_{i,t} + \alpha_2 BT_{i,t} \quad (3)$$

The dependent variable Part in the formula represents consumer participation, and the model is used to investigate the extent to which the two independent variables, IT, i.e. intrinsic consumer trust, and BT, i.e. behavior consumer trust, have an impact on consumer participation.

In the study of consumer participation and the effect of the starting variable personalized marketing strategies in the sales industry on consumer confidence in sensitive privacy information security and general privacy information security, multiple linear regression equations (4) (5) were constructed for analysis.

$$SPC_{i,t} = \gamma_1 PMS_{i,t} + \gamma_2 Part_{i,t} \quad (4)$$

$$GPC_{i,t} = \delta_1 PMS_{i,t} + \delta_2 Part_{i,t} \quad (5)$$

The dependent variables SPC and GPC in the formula represent consumer confidence in sensitive privacy information security and consumer confidence in general privacy information security, respectively, and the two models are used to investigate the extent to which PMS, i.e., personalized marketing strategies in the sales industry, and Part, i.e., consumer participation, affect consumer confidence in sensitive privacy information security and consumer confidence in general privacy information security, respectively.

Based on the constructed model, this paper makes preliminary assumptions about the inferred relationships between the variables:

H1: Personalized marketing strategies in the sales industry have a positive effect on intrinsic consumer trust;

H2: Personalized marketing strategies in the sales industry have a positive effect on behavior consumer trust;

H3: Intrinsic consumer trust has a positive effect on consumer participation;

H4: Behavior consumer trust has a positive effect on consumer participation;

H5: Increased consumer participation has an inverse effect on consumer confidence in general privacy information security;

H6: Increased consumer participation has an inverse effect on consumer confidence in sensitive privacy information security;

H7: Personalized marketing strategies in the sales industry have an inverse effect on consumer confidence in general privacy information security;

H8: Personalized marketing strategies in the sales industry have an inverse effect on consumer confidence in sensitive privacy information security.

4. Empirical Results

4.1. Descriptive Statistics

The questionnaire contains information on the personal characteristics of the respondents such as gender, age, education level and occupation, as shown in Table 4. According to the gender of the respondents, the number of female respondents is slightly higher than the number of male respondents, which also corresponds to a certain extent to the sales industry clientele with more women. From the age of the respondents, 18-24 years old and 25-34 years old two age groups of young people occupy the main body, from one hand, it shows that China's sales industry object young people, and on the other hand, it can also make the data more in line with the trend of the sales industry's youth. From the point of view of education, respondents with bachelor degree or above are slightly lower than those with less than bachelor degree, but the proportion is basically equal, which is more representative of the general position of the public on the sales industry rather than the position of a single highly educated subject. In terms of respondents' occupation, students account for the largest proportion, and the proportion and number of the remaining industries are similar. School students generally have a strong desire to consume, and at the same time has the characteristics of diversity, its relevant recommendations have a certain degree of reference [11]. It can be seen that the collected data has a certain objectivity and representativeness, suitable for research and relevant recommendations.

Table 4. Assignment of variables.

Variable	Option	N	Percentage	Mean	SD
Gender	Male	167	47.6%	1.52	0.500
	Female	184	52.4%		
Age	18-year-old and below	49	14.0%	2.94	1.341
	18-24 years old	97	27.6%		
	25-34 years old	101	28.8%		
	35-44 years old	46	13.1%		
	45-54 years old	46	13.1%		
	55-year-old and above	12	3.4%		
Education	Junior high and below	51	14.5%	2.56	1.083
	Senior high	140	39.9%		
	Undergraduate	93	26.5%		
	Master	45	12.8%		
	Doctor and above	22	6.3%		
Occupation	Student	92	26.2%	3.69	2.189
	Education	40	11.4%		
	Medical Care	38	10.8%		
	Business and Finance	45	12.8%		
	Technology	38	10.8%		
	Private, Self-employed	47	13.4%		
	Other	51	14.5%		

In this study, the basic statistics of different structural variables were conducted, as shown in Table 5 below. The mean, standard deviation, minimum value, maximum value and t-test results of each structural variable are listed in Table 5, which shows that the data distribution of each structural variable presents some similarity.

Table 5. Summary statistics of variables.

Variable	Mean	SD	Min	Max	T-statistics
PMS	3.14	1.155	1.00	5.00	50.953
Trust	3.20	1.097	1.20	4.70	54.643
Part	3.17	1.189	1.00	4.80	50.003
PC	2.56	1.190	1.00	4.45	40.313

In this study, Pearson correlation was used to test the correlation between the structural variables, and the results are shown in Table 6. In the correlation test results, the correlation coefficient takes the value of -1 to 1, the closer the correlation coefficient is to 1, the higher the degree of positive correlation between variables; the closer the correlation coefficient is to -1, the higher the degree of negative correlation between variables. According to the results of the analysis, the highest degree of positive correlation is between personalized marketing strategies in the sales industry and consumer trust, with a correlation coefficient of 0.838, and the highest degree of negative correlation is between personalized marketing strategies in the sales industry and consumer confidence in privacy information security, with a correlation coefficient of -0.714. At the same time, the correlation coefficients of all the variables are all over 0.4, and at the same time in the condition of significance, which indicates that the correlation degree is relatively high, which preliminarily verifies the previous hypothesis.

Table 6. Pearson correlation.

	PMS	Trust	Part	PC
PMS	1			
Trust	.838**	1		
Part	.802**	.816**	1	
PC	-.714**	-.692**	-.688**	1

Note: ** represents significant at the 5% level.

4.2. Regression Results

The previous test of the article has verified the correlation between the variables, while the detailed linear relationship between the respective variables still needs to be further verified by multiple linear regression. Therefore, this article uses multiple linear regression and univariate linear regression, and through the covariance test. The relationship between the variables is regressed and analysed, and the results are shown in Table 7.

Table 7. Regression results.

Variable	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
C	.741	.105		7.061	.000		
PMS to IT	.783	.031	.801	24.977	.000	1.000	1.000
C	.638	.115		5.528	.000		
PMS to BT	.812	.034	.784	23.564	.000	1.000	1.000
C	4.845	.140		34.486	.000		
PMS to GPC	-.722	.042	-.677	-17.198	.000	1.000	1.000
C	4.908	.142		34.552	.000		
PMS to SPC	-.753	.042	-.689	-17.744	.000	1.000	1.000
C	.348	.114		3.059	.002		
Trust IT to Part	.493	.053	.469	9.287	.000	.377	2.650
BT to Part	.391	.050	.394	7.802	.000	.377	2.650
C	4.744	.141		33.603	.000		
Part to GPC	-.683	.042	-.660	-16.391	.000	1.000	1.000
C	4.749	.146		32.611	.000		
Part to SPC	-.696	.043	-.655	-16.184	.000	1.000	1.000

According to the test results, from the first to fourth rows of the variable PMS, the multiple covariance test VIF value of the personalized marketing strategies in the sales industry on the consumers' intrinsic trust and behavior trust is 1, which indicates that there is no problem of multiple covariance between the factors and the regression results are reliable. At the same time, its regression results show that personalized marketing strategies in the sales industry has a significant positive effect on consumers' intrinsic trust and behavior trust ($B=0.783$, $T=24.977$, $P<0.001$; $B=0.812$, $T=23.564$, $P<0.001$), which is in line with the hypotheses H1, H2. Meanwhile, the degree of influence of personalized marketing strategies in the sales industry on consumer behavior trust is higher than the degree of influence on consumer intrinsic trust, indicating that the difficulty of personalized marketing to win consumers' intrinsic approval is greater than the difficulty of their consumer behavior approval;

From the five to eight rows of the variable PMS, personalized marketing strategies in the sales industry has a significant negative impact on consumer confidence in general privacy information security and sensitive privacy information security, and its multiple covariance test VIF value is 1, indicating that there is no problem of multiple covariance among the factors and the regression results are reliable. At the same time, its regression results show that personalized marketing strategies in the sales industry has a significant negative effect on consumer confidence in general privacy information security and sensitive privacy information security ($B=-0.722$, $T=-17.198$, $P<0.001$; $B=-0.753$, $T=-17.744$, $P<0.001$), which is in line with the hypotheses H7, H8. Meanwhile, the degree of influence of personalized marketing strategies in the sales industry on consumer confidence in sensitive privacy information security is slightly higher than that in general privacy information security, while the difference in the degree of influence between the two is very small, which suggests that personalized marketing causes consumers to be more worried about the security of both general and sensitive information;

From the results of the three-row test for the variable Trust, consumer intrinsic trust and behavior trust on consumer participation, the VIF values of the test of multicollinearity were both 2.650, indicating a slight problem of multicollinearity between the factors, but a VIF value of 10 or less is

usually considered acceptable and may be higher in the field of business studies. The regression results are still reliable. Meanwhile, its regression results show that both consumer intrinsic trust and behavior trust have a significant positive effect on consumer participation ($B=0.493$, $T=9.287$, $P<0.001$; $B=0.391$, $T=7.802$, $P<0.001$), which is in line with hypotheses H3, H4. Meanwhile, the degree of influence of consumer intrinsic trust on consumer participation is higher than the degree of influence of consumer behavior trust on consumer participation, indicating that consumer intrinsic recognition is more likely to lead to their greater engagement;

From the results of the four-line test of variable Part, the VIF value of the multicollinearity test of consumer participation on consumer confidence in general privacy information and sensitive privacy information security is 1, which indicates that there is no multicollinearity problem among the factors and the regression results are reliable. At the same time, its regression results show that consumer participation has a significant negative effect on consumer confidence in general privacy information security and sensitive privacy information security ($B=-0.683$, $T=-16.391$, $P<0.001$; $B=-0.696$, $T=-16.184$, $P<0.001$), which is in line with H5, H6 hypotheses. Meanwhile, the degree of influence of consumer participation on consumer confidence in sensitive privacy information security is slightly higher than that on consumer confidence in general privacy information security, while the difference in the degree of influence between the two is very small, which indicates that a higher degree of consumer participation leads to a greater concern about the security of both general and sensitive information.

5. Conclusion

Based on the sales industry, this paper takes personalized marketing in the sales industry as the starting point, and through step-by-step research on the impact of personalized marketing strategies in the sales industry on consumer trust (intrinsic trust, behavior trust), consumer participation, and ultimately the extent to which personalized marketing strategies in the sales industry affect consumer confidence in privacy information security (confidence in general privacy information security, and confidence in sensitive privacy information security). Multi-dimensional data and conclusions were also obtained in the process of deriving the study. Based on the research purpose of this paper, the following recommendations are given:

(1) Companies in the sales industry innovate and improve consumer privacy protection mechanisms. This is an important part of the contemporary sales industry to be able to improve marketing effectiveness, prompt users to generate repeat consumption, and achieve business development. If necessary, privacy protection system innovation can be carried out. Enterprises in the use of consumer privacy data for personalized marketing process, not only to avoid the subjective leakage of user privacy data caused by poor management, but also to ensure that the objective use of privacy information in the process of the lawless elements to find loopholes in the process of stealing the information may occur.

(2) Enterprises in the sales industry should further strengthen whole-process personalized marketing. Through the research of this paper, the intrinsic trust of consumers will bring about greater consumer participation, and enterprises in the sales industry should strengthen the whole process of personalized marketing, so as to win a larger group of customers.

(3) Users protect their privacy and information security. In the process of participating in the marketing process, to raise the vigilance of unscrupulous elements and unscrupulous enterprises, in the joint efforts of enterprises and individuals to improve the security of privacy and information.

Due to time and other constraints, this paper is still incomplete to a certain extent in the setting of variables affecting consumer confidence in privacy information security in the research process. In the subsequent research, more influential variables may be included in this direction to further improve the system of the research results. At the same time, more complex models and descriptions may be used in the research methodology to make the research results more in-depth.

References

- [1] Corbett, C. J. (2018). How sustainable is big data? *Production and Operations Management*, 27(9), 1685–1695.
- [2] Yoshikuni, A. C., Dwivedi, R., Zhou, D., & Wamba, S. F. (2023). Big data and business analytics enabled innovation and dynamic capabilities in organizations: Developing and validating scale. *International Journal of Information Management Data Insights*, 3(2), 100206.
- [3] Raguseo, E., Vitari, C., & Pigni, F. (2020). Profiting from big data analytics: The moderating roles of industry concentration and firm size. *International Journal of Production Economics*, 229, 107758.
- [4] Anshari, M., Almunawar, M. N., Lim, S. A., & Al-Mudimigh, A. S. (2019). Customer relationship management and big data enabled: Personalization & customization of services. *Applied Computing and Informatics*, 15(2), 94–101.
- [5] Chandra, S., Verma, S., Lim, W. M., Kumar, S., & Donthu, N. (2022). Personalization in personalized marketing: Trends and ways forward. *Psychology & Marketing*, 39(8), 1529–1562.
- [6] Han, C., & Mardani, A. (2023). Research on the impact of consumer privacy and intelligent personalization technology on purchase resistance. *Journal of Business Research*, 161, 113811.
- [7] Yun, W., & Hanson, N. (2020). Weathering consumer pricing sensitivity: The importance of customer contact and personalized services in the financial services industry. *Journal of Retailing and Consumer Services*, 55, 102085.
- [8] Hsu, C., Chen, Y., Yang, T., Lin, W., & Liu, Y. (2018). Does product design matter? Exploring its influences in consumers' psychological responses and brand loyalty. *Information Technology & People*, 31(3), 886–907.
- [9] Chaudhuri, A., & Holbrook, M. B. (2001). The Chain of Effects from Brand Trust and Brand Affect to Brand Performance: The Role of Brand Loyalty. *Journal of Marketing*, 65(2), 81–93.
- [10] Theoharakis, V., Yi, Z., & Zhang, L. (2024). Dynamic strategic marketing planning: The paradox of concurrently reconfiguring and implementing strategic marketing planning. *Journal of Business Research*, 174, 114525.
- [11] Li, R. (2020). Sample analysis and guidance strategy of college students' network culture consumption. *Thought Theory Education*, 10, 92-96.