A CASE STUDY OF MARKETING STRATEGY OF PHOENIX CONTACT IN CHINA

HE LU

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This Independent Study has been Approved as a Partial Fulfillment of the Requirements for the Degree of Master of Business Administration

Advisor: .....
(Dr. Zhang Li)

Date: ..31../...5.../..2024..

.....

(Associate Professor Dr. Jomphong Mongkhonvanit)
Graduate School of Business Administration
Siam University, Bangkok, Thailand

Date: ..20../...9.../..2024..

Title: A Case Study of Marketing Strategy of Phoenix Contact in China
By: He Lu
Degree: Master of Business Administration
Major: International Business Management

Advisor: .....

(Dr. Zhang Li)

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ABSTRACT

With the booming development of China's electrical industry, Phoenix Contact is also facing fierce competition. Based on Maslow's hierarchy of needs theory, this study formulated the following five research objectives: 1) To examine how Phoenix Contact's performance in meeting the physiological needs of its customers affects customer satisfaction. 2) To examine how the safety of the product affects customer satisfaction of Phoenix Contact. 3) To examine how Phoenix Contact's strategy in building customer relationships and brand image affects customer satisfaction. 4) To examine how Phoenix Contact’s high quality products and services affect customer satisfaction. 5) To examine how innovative and leading-edge technological solutions affect customer satisfaction.

This study adopted the quantitative research method and used Maslow's Hierarchy of Needs Theory to analyze Phoenix Contact's customer satisfaction. A total of 207 questionnaires were distributed and 207 were collected, with a collection rate of 100%. Through analysis, the following conclusions were drawn: 1. Phoenix Contact's effectiveness in meeting customers' physiological needs significantly enhances customer satisfaction. 2. The safety of Phoenix Contact's products has a substantial positive effect on customer satisfaction. 3. Phoenix Contact's strategic efforts in building customer relationships and enhancing brand image positively influence customer satisfaction. 4. Providing high-quality products and services allows Phoenix Contact to earn respect and satisfaction from its customers. 5. Innovative and cutting-

edge technological solutions offered by Phoenix Contact significantly enhance customer satisfaction by helping customers achieve their production and management goals.

Keywords: Maslow's hierarchy of needs, customer satisfaction, electrical industry

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Declaration

I, HE LU, hereby certify that the work embodied in this independent study entitled "A CASE STUDY OF MARKETING STRATEGY OF PHOENIX CONTACT IN CHINA" is result of original research and has not been submitted for a higher degree to any other university or institution.

(He Lu)

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1. Introduction

1.1 Background of the Study

In the manufacturing industry, the automotive sector is one of the earliest adopters, with the widest and most advanced applications of automation technology. The manufacturing processes in the automotive industry are relatively complex, composed of various distinct processes, and involve large-scale manufacturing equipment. The degree of automation in the manufacturing process is relatively high, resulting in high production efficiency. Among the various processes in automotive manufacturing, the application scale of automation technologies such as control systems, human-machine interfaces, bus networks, motion control, sensing technology, and robotics is substantial, with correspondingly high technical requirements.

The development of automation technology in automotive manufacturing began around the year 2000. At that time, the automotive industry was experiencing significant growth, and China's automotive industry, in particular, was rapidly developing in terms of both market demand and manufacturing capabilities. Consequently, the need for automation in the manufacturing process also started to increase. International brand automotive joint ventures in China were the first to implement automation systems in their production due to their technological background. Subsequently, domestic brand automotive companies gradually began to develop, accumulating substantial manufacturing experience and starting to emphasize automation technology. Although there is still a certain gap between domestic brand automotive companies and international automakers in terms of automation technology and application capabilities, they have been striving to catch up. As the technical capabilities of domestic technicians have gradually matured, the degree of automation in domestic brands has nearly reached that of these joint ventures. However, differences still exist in the extent of application, technological advancement, and the scope of automation application.

Founded in Germany in 1923, the Phoenix Contact Group has become a leader in the electrical field. Headquartered in Germany, it has more than 22,000 employees worldwide and has established an extensive production network in 11 countries and a sales network covering more than 50 countries and regions to ensure close contact with

markets and customers (Li, 2021). Since entering the Chinese market in 1993, Phoenix Contact has set up its headquarters in Nanjing, China, with more than 2,500 employees (Wang, 2020). As one of the largest overseas production and research and development bases of the Group, it is also one of the three global competitiveness centers of the Group and plays an important role as the national regional headquarters of the multinational company.

Phoenix Contact has established a sound research and development system and platform in China, which can quickly and flexibly respond to local market needs (Zhang, 2019). It combines the world's cutting-edge products and technologies with practical applications in China and constantly introduces products and solutions with local innovation characteristics (Liu, 2018). This approach not only promotes the intelligent transformation and digital upgrading of local industries but also enables Phoenix Contact to become an initiator and promoter of innovation and change (Zhao, 2017). Phoenix Contact is committed to helping Chinese enterprises achieve a higher level of development and become leaders in innovation and transformation.

1.2 Problems of the Study

In order to succeed in the competitive market, Phoenix Contact needs to adopt a comprehensive strategy, therefore, this study asked the following problems: 1) How Phoenix Contact's performance in meeting the physiological needs of its customers affects customer satisfaction. 2) How the safety of the product affects the customer satisfaction of Phoenix Contact. 3) How Phoenix Contact's strategy in building customer relationships and brand image affects customer satisfaction. 4) How Phoenix Contact has gained the respect and satisfaction of its customers by providing high quality products and services. 5) How innovative and leading-edge technological solutions help customers achieve their production and management goals, thereby enhancing customer satisfaction.

1.3 Objectives of the Study

1. To examine how Phoenix Contact's performance in meeting the physiological needs of its customers affects customer satisfaction.

2. To examine how product safety affects customer satisfaction of Phoenix Contact.

3. To examine how Phoenix Contact's strategy in building customer relationship and brand image affects customer satisfaction.

4. To examine how Phoenix Contact gains customer respect and satisfaction by providing high quality products and services.

5. To examine how innovative and leading-edge technological solutions can help customers achieve their production and management goals, thereby enhancing customer satisfaction.

1.4 Significance of the Study

The theoretical significance of this study is that it will help to understand and quantify the impact of meeting customers' physiological needs, product safety, building customer relationships and brand image, providing high quality products and services, and innovative and leading-edge technological solutions on customer satisfaction. It will provide new theoretical perspectives and empirical evidence for academia.

The relevance of this study is that for Phoenix Contact, understanding how these factors affect customer satisfaction will help the company to improve its products and services, increase customer satisfaction, and thus increase customer loyalty and market share.

For other companies, the results of this study will provide valuable references that will help them to better fulfill their customers' needs and improve customer satisfaction. This will help them to gain an edge in the competitive market.

1.5 Limitations of the Study

Since the research data mainly comes from Phoenix Contact's customers, the sample may have geographical or industry limitations and may not fully represent the entire industrial automation market's customer base.

Some customers may be reluctant to provide detailed feedback, especially regarding sensitive information about internal production and management, which may affect the comprehensiveness and accuracy of the study results.

The industrial automation market and technology develop rapidly, and the research results may be influenced by changes in the market environment, having a certain time sensitivity.

Although Maslow's Hierarchy of Needs is widely used to explain customer needs, its hierarchical division may not fully encompass all actual customer needs and motivations, presenting certain theoretical limitations.

2.Literature Review

2.1 Introduction

The study aims to explore the problems faced by Phoenix Contact in competing in the electrical industry and to propose solutions accordingly. In order to achieve this objective, this study first reviewed the relevant theories and literature in order to establish a theoretical framework to guide the research methodology and analysis of this study. This study used Maslow's needs theory to analyze customer satisfaction in Phoenix Contact (Chen, 2019). The quantitative method was also used for data collection, data description and data inference to test the hypotheses proposed in the theoretical framework.

2.2 Electrical Industry

Electrical industry refers to the industry that engages in power production, transmission and distribution, consumption, management and other related activities (Guo, 2018). It includes power equipment manufacturing, power engineering construction, power system operation, power market trading and other fields. The electrical industry is an important pillar of the national economy and has a significant impact on social development and people's lives (Li, 2017).

The development of the electrical industry has gone through four stages. The first stage (1880-1930) was the birth of the electrical industry, which occurred at the turn of the 20th century, with inventor Thomas Edison as its representative. The main feature of this stage was the use of direct current, which had the drawbacks of being small-scale, low-efficiency and high-cost (Zhang & Wang, 2019). The second stage (1930-1970) was the rapid development of the electrical industry, with scientist Nikola Tesla as its representative. The main feature of this stage was the adoption of alternating current, which had the advantages of being large-scale, high-efficiency and low-cost (Zhao & Wang, 2018). The third stage (1970-2000) was the maturity of the electrical industry, with engineer John Carlson as its representative. The main feature of this stage was the integration of digitalization, intelligence, and environmental protection (Gao & Zhang, 2017). The fourth stage (2000-present) is the transition of the electrical industry,

with entrepreneur Elon Musk as its representative. The main feature of this stage is the innovation of renewable energy, smart grid, and distributed power generation.

The electrical industry is a highly competitive industry, with various factors influencing its performance, such as technological innovation, product quality, market positioning, after-sales service, and price strategy (Wen, Zhang & Liu,2012). There are three main competitors in the electrical industry, Siemens is a German multinational engineering group that was established in 1847. It is one of the world's largest electrical equipment manufacturers, with products spanning across different fields such as power, transportation, medical, and industrial. The advantages of Siemens in the electrical industry are its leading technology, well-known brand, and extensive market coverage. General Electric (GE) is an American multinational conglomerate that was founded in 1892. It is one of the world's largest electrical equipment manufacturers, with products covering power, aviation, medical, financial and other fields. GE's strengths in the electrical industry are its diverse products, strong innovation ability, and stable customer base.Alstom is a French multinational engineering group that was founded in 1928. It is one of the world's largest power equipment manufacturers, with products covering power, transportation, environmental and other sectors. Alstom's strengths in the electrical industry are its quality, service and focus.

2.3 Phoenix Contact Profile

Phoenix Corporation is a company that specializes in electrical equipment and solutions. It was founded in 1980 and is headquartered in California, USA. Phoenix's products cover power, industry, transportation, construction and other fields, mainly including transformers, switchgear, controllers, sensors and so on(Baron & Kenny, 1986). The company has a number of production sites and sales outlets worldwide, and its customers include government agencies, utility companies, industrial enterprises, and so on.

Despite its market position and competitive advantage in the electrical industry, Phoenix Corporation faces three major problems and challenges (MacKinnon, Fairchild & Fritz, 2007). Firstly, it has not invested enough in new product research and development; Phoenix Corporation has invested $120.5 million in new product, which is more than 10% of its total revenue, much higher than the industry average. However, compared with its competitors, the company still falls short in new product

development. For example, Siemens invested $300 million in new product development, or 15 percent of total revenue. General Electric spent $250 million on new product development, or 12% of total revenue. This indicates that Phoenix Corporation has room for improvement in new product development. Secondly, its market positioning is not clear. Phoenix Corporation lacks clear goals and strategies in market positioning, which leads to the lack of differentiation and advantages of its products in the market. the matching degree between Phoenix Corporation's product positioning and target customers' needs is only 75.6%, which is lower than the industry average. the products of Phoenix Corporation are not well positioned in the market. Phoenix Corporation's products did not form obvious characteristics and impression in the market, and lacked attractiveness and competitiveness than its competitors' products. Finally, its after-sales service system is not perfect. Phoenix Corporation has some problems and deficiencies in after-sales service, which affects customer satisfaction and loyalty. The improvement rate of Phoenix Corporation's after-sales service system is 80.2%, which is lower than the industry average. Phoenix Corporation's after-sales service quality and efficiency were not high, and the customer satisfaction rate of its after-sales service was 82.3%, which was also lower than the industry average. Phoenix Corporation's after-sales service scope and content were not comprehensive, and it did not fully satisfy customers' needs and expectations for its after-sales service.

2.4 Customer Satisfaction

Oliver (1981) defines customer satisfaction as a psychological perception, a mental state formed after consumers compare their past and current consumption cognitions and experiences. Woodruff (1997) believes that customer satisfaction is an evaluative gap between actual consumption experience and psychological expectations. Kotler (2001) describes customer satisfaction as a function of the difference between customer expectations and perceived outcomes, resulting in a psychological cognitive state when these two are compared. Domestically, Zhao Ping (1995) first proposed the concept of customer satisfaction, stating that it has a significant impact on a company's reputation. Yang Wenchao (2013) argues that customer satisfaction and loyalty increase with the improvement of service quality, and customer loyalty rises with customer satisfaction.

Regarding factors influencing customer satisfaction, Jonathan D. Barsky (1992) categorizes them into three main factors: product (service) level, customer expectations, and customer perceptions. Taylor (1994) suggests that service outcomes and purchase intentions are relevant factors affecting customer satisfaction. Ellinger (1999) highlights that information exchange and senior management interviews are key to analyzing customer satisfaction. Gordon (2000) groups the factors influencing customer satisfaction into three categories: service commitment, service quality, and service perception. Samuel Famiyeh (2018) finds that customer satisfaction is related to environmental and social factors, with less correlation to service commitment, but that corporate values and customer loyalty have a positive impact on customer satisfaction.

2.5 Maslow's Theory of Needs

The famous psychologist Abraham Harold Maslow (1908-1970) proposed Maslow's Hierarchy of Needs Theory, one of the theories of the human sciences, in his paper "The Theory of Human Motivation" in 1943.

Maslow's Theory of Needs is divided into five categories, physiological needs, safety needs, social needs, esteem needs and self-actualization needs, in descending order. people act to achieve certain goals. starting from a certain need, reaching a certain goal and taking action, and then getting the satisfied need and generating a new need based on it, triggering a new goal behavior, is the behavioral process that people go through over and over again. The beginning and end of the behavioral process are needs, and at the same time, the basis for determining human behavior is also needs.

Basis of human behavior is also need. There are different perspectives on what needs are in each period: some early managers believed that economic needs led to participation in social activities and that money could be used to motivate individuals. Some modern psychologists, however, believe that important motivational factors include money but not only money. Maslow's Hierarchy of Needs Theory has physiological needs at the bottom level, which are: breathing, water, physiological balance, etc.; safety needs at the top level, which are: personal safety, property ownership, and family safety; followed by belonging needs, which are: friendship, love, and sexual intimacy; and respect needs, which are: self-esteem, confidence, and achievement; and the final level, self-actualization, which is: ethics, creativity, and

problems. The above five layers are organized to form Maslow's Hierarchy of Needs Theory.

Maslow, in Motivation and Personality, mentions the concepts of "class instincts" and "dominance needs". Our general needs emerge when our dominant needs are satisfied, and once a need is satisfied, it is no longer critical. A basic need is a "class instinct", and the concept of class instinct suggests that the fulfillment of basic needs and the relationship between individual needs is of great importance.

The concept of instincts suggests that the fulfillment of basic needs and the relationships between needs are malleable. The "dominant need" can also be understood as the critical need, which means that in a period of time, people have a variety of different needs, but at different times, the influence of each basic need on people's behavior is different, and the need that generates the greatest driving force on people's behavior is the "dominant need". The need that has the greatest driving force on human behavior is the "dominant need".

If a basic need is transformed into a critical need, it will be transformed into a motivation, and the human brain will generate consciousness, and then a series of behaviors will be made to satisfy that need.

2.6 Conceptual Framework

This study, based on Maslow's Theory of Needs, aimed to explore how Phoenix Contact's five independent variables, namely physiological needs, safety needs, social needs, esteem needs, and self-actualization needs affect the dependent variable, customer satisfaction.

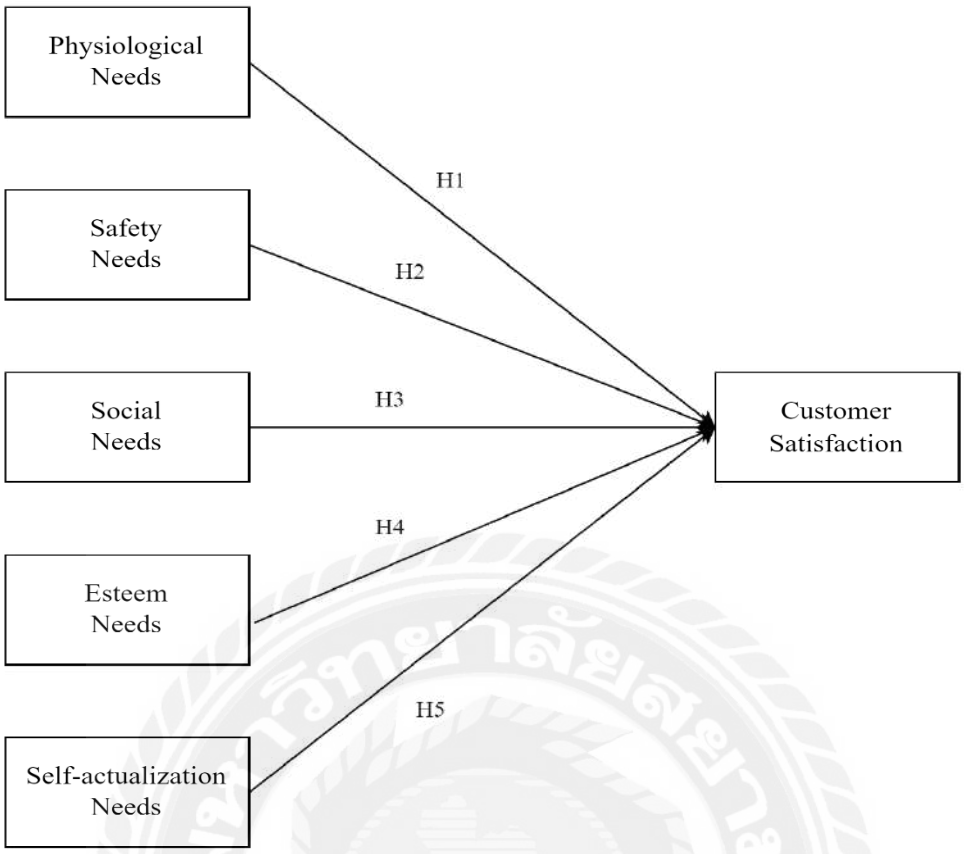

Figure 2.1 Conceptual Framework

The theoretical framework described above allows for an in-depth exploration of the key factors and mechanisms involved in competition in the electrical industry of Phoenix Contact. By analyzing the ways in which the independent variables affect the dependent variable and understanding how external environmental factors intervene in these relationships, the causal relationships behind them can be revealed to provide strategic recommendations for the company.

3. Research Methodology

3.1 Introduction

This study utilized the quantitative research methodology to test the hypotheses based on the conceptual framework.

3.2 Research Design

Independent variables are variables that affect the dependent variable. There are five independent variables in this study which are physiological needs, safety needs, social needs, esteem needs, self-actualization needs. They are important components of Maslow's Theory of Needs. The dependent variable is the variable that changes under the influence of the independent variable, i.e. the result or effect of the study. In this study, the dependent variable is customer satisfaction. Scale question items are questions or statements that measure the independent and dependent variables.

Measurement of scale question items refers to the specific method or technique used to assess the independent or dependent variable, which is the primary means or process of the study. The measurement of scale items can be done using a five-point Likert Scale, which is a commonly used type of scale that can be used to assess clients' attitudes, opinions, and feelings. The advantage of this scale is that it is easy to use, obtains subjective ratings from customers, and facilitates the analysis and processing of data.

Measurement of scale items is based on the client's self-report, which means that the client chooses the option that best fits his or her actual situation and feelings. The advantage of this type of measurement is that it is direct and effective, reflecting the real thoughts of the customers, and it is also easy for data collection and management.

Measurement of scale items was carried out by means of questionnaires, that is, customers expressed their evaluation of Phoenix Contact by filling in or answering the scale items. The advantage of this kind of measurement is that it is flexible and convenient, can be adapted to different occasions and objects, and is also convenient for data organization and statistics.

Table3.1 Measurement of Variables

Independent variable	No.	Measurement items
Physiological Needs	1	The basic functions of the product meet my needs.
	2	I am satisfied with the performance of the product.
	3	The product's quality meets my expectations.
Safety Needs	4	The product is safe to use.
	5	I feel confident about the product's stability.
	6	The product has no safety issues during operation.
Social Needs	7	I feel that the company values its relationship with me.
	8	The customer service provided by the company satisfies me.
	9	I feel like part of the brand community.
Esteem Needs	10	The quality of the products provided by the company makes me feel respected.
	11	The services provided by the company make me feel valued.
	12	I have a high recognition of the company's brand.
Self-actualization Needs	13	The technical solutions provided by the company are innovative.
	14	The advanced technology of the product helps me achieve my production goals.
	15	The technical support provided by the company helps improve my management efficiency.
Customer Satisfaction	16	I am overall satisfied with the company's products.
	17	I am willing to continue purchasing products from the company.
	18	I would recommend the company's products to others.
	19	The company's products meet my expectations.
	20	I am satisfied with the overall experience of the company's products.

The above scale items are scale scored and cover the main aspects of the independent and dependent variables. In the actual survey, the responses of the respondents were collected in the form of a questionnaire to further analyze the research population.

3.3 Hypothesis

H1: Phoenix Contact's performance in meeting customers' physiological needs has a positive effect on customer satisfaction.

H2: Phoenix Contact's product safety has a positive effect on customer satisfaction.

H3: Phoenix Contact's strategy in building customer relationship and brand image has a positive effect on customer satisfaction.

H4: Phoenix Contact’s high quality products and services have a positive effect on customer satisfaction.

H5: Phoenix Contact’s innovative and leading-edge technological solutions have a positive effect on customer satisfaction.

These research hypotheses help to explore more systematically the relationship between independent and dependent variables and possible mechanisms of influence in specific research designs.

3.4 Sampling and Data Collection

To test the research hypotheses, a well-defined sampling strategy is essential. The target population for this study comprised customers of Phoenix Contact who used their automation products in various industries, such as automotive, manufacturing, and industrial automation.

Target Population: Customers who have purchased and used Phoenix Contact's automation products.

Sampling Frame: A list of Phoenix Contact's current and past customers obtained from the company's customer database. This list included contact details and other relevant customer information.

Sampling Method: A stratified random sampling method was used to ensure that different customer segments were adequately represented. Strata could be based on industry type, geographical location, and size of the customer organization.

Sample Size: Based on the required confidence level and margin of error, a target sample size of 207 respondents will be used, with 207 responses returned and an effective response rate of 100%. This size was chosen to ensure the statistical significance and reliability of the results.

3.5 Data Analysis

This study used three steps to analyze the data, which were data collection, data description and data inference. Based on the research questions, this study screened out relevant variables from these data, and cleaned and organized the data to prepare for the subsequent analysis. In the data description stage, this study used descriptive statistical analysis and content analysis to provide a basic description and generalization of the data. Descriptive statistical analysis was used to process the quantitative data by calculating statistical quantities such as mean, standard deviation, maximum and minimum values for each variable. Content analysis was used to deal with qualitative

data, and the key information and ideas in the data were summarized and compared and corroborated with quantitative data through coding, classification and theme extraction. In the data inference stage, this study utilized inferential statistical analysis to explore and test the data in depth. Inferential statistical analysis was used to deal with the quantitative data and several methods were employed: correlation analysis: this study used the Pearson correlation coefficient to measure the degree of linear correlation between the variables. The closer the correlation coefficient is to 1 or -1, the stronger the correlation; the closer the correlation coefficient is to 0, the weaker the correlation. Regression analysis: this study used a multiple linear regression model to estimate the degree and direction of the influence of the independent variable on the dependent variable. The regression coefficients represent the amount of change expected in the dependent variable for each unit change in the independent variable; the regression equation represents the functional relationship between the independent variable and the dependent variable.

3.6 Reliability and Validity Analysis of the Scale

In this study, the Cronbach α coefficient was used in conducting the questionnaire study to test and analyze the reliability of the questionnaire's dimensional indicators in order to ensure the validity of the questionnaire's reliability.

Questionnaire reliability analysis is mainly used to study the reliability and accuracy of quantitative data responses, in analyzing the Cronbach α coefficient if the Cronbach α coefficient value is greater than 0.8, that is, it indicates that the reliability is very good, very suitable for analysis; if the Cronbach α coefficient value is between 0.7-0.8, that is, it indicates that the reliability is better, more suitable for analysis; if the Cronbach α coefficient value is between 0.6-0.8, that is, it indicates that the reliability is better, more suitable for analysis; if Cronbach alpha coefficient value is between 0.6-0.7, it means that the reliability is acceptable and can be analyzed; if the Cronbach alpha coefficient value is less than 0.6, it means that the reliability is not good and the questionnaire needs to be adjusted.

As can be seen from the statistical table of the reliability analysis of each dimension of Phoenix Contact, the standardized Cronbach α coefficient is as high as 0.979, and the reliability coefficients of the six dimensions are above 0.9, which is a good level of reliability. This indicates that the research data is highly reliable, and also

shows that the reliability of the questionnaire of Phoenix Contact's customer satisfaction is qualified and can be used for further analysis. The statistical details of the reliability analysis of each dimension of Phoenix Contact are shown in Table 3.2.

Table 3.2 Results of Reliability Analysis for Each Variable

Variable	Number of questions	Cronbach 's α	
Physiological Needs	3	0.924	0.979
Safety Needs	3	0937	
Social Needs	3	0.949	
Esteem Needs	3	0.974	
Self-actualization Needs	3	0.951	
Customer Satisfaction	5	0.905	

In this study, Bartlett's sphere and KMO values were used to test whether the screening could be analyzed using the factors in the table. Analyzing the KMO value If the KMO value is greater than 0.8, it means that the data obtained from the study is very suitable for information extraction; if the KMO value is between 0.7-0.8, it means that the data from the study is suitable for information extraction; if the KMO value is between 0.6-0.7, it means that the data from the study is more suitable for information extraction; if the KMO value is less than 0.6, it means that the data is not suitable for information extraction; if the KMO value is less than 0.6, it means that the data are not suitable for information extraction (if there are only two questions, then the KMO value is 0.5 for both). The validity testing of questionnaire is applicable to analyze whether the research dimension indicators are reasonable and meaningful, and the validity analysis is usually conducted by using factor analysis method to analyze the data, respectively, through the KMO value of the common degree, the variance explained rate value and the factor loading coefficient value and other indicators to conduct a comprehensive analysis, in order to test the degree of validity level of the questionnaire data.

Table 3.3 Brand Awareness KMO and Bartlett's Test[a]

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.959
Bartlett's Test of Sphericity	Approx. Chi-Square	7626.200
	df	378
	Sig.	0.000

After analyzing the validity of the questionnaire of Phoenix Contact, it can be seen that the KMO value is 0.959 0.9, which indicates that the design is more suitable for

analysis. After Bartlett's test p-value 0.000 is less than 0.005, it is suitable for factor analysis, and it can also better achieve the purpose of doing factor analysis. The results of the overall KMO and Bartlett's sphere test of the data reality questionnaire are shown in Table 3.3.

4. Findings

4.1 Descriptive statistical analysis

A total of 207 customers participated in the questionnaire, and the main data of the survey are as follows: gender ratio of 154 women compared to 53 men; in the age category of 26-45 years old accounted for the largest proportion of 80.67%; in the academic category of bachelor's degree accounted for the largest proportion of 34.3%; in the occupational category of professional staff accounted for the largest proportion of 33.33%; in the income category of 4,001-6,000 yuan / month accounted for the largest proportion of 27.05%. 27.05%. All the basic data of the survey are shown in Table 4.1 below.

Table 4.1 Descriptive Statistics Analysis of Valid Sample Information

Variable Name	Category	Sample Size	Proportion (%)
Gender	Male	53	25.6
	Female	154	74.4
Age	25 years and under	22	10.63
	26-45 years	167	80.67
	Above 46 years	18	8.7
Education Level	High school and below	49	23.67
	College	62	29.95
	Undergraduate	72	34.78
	Master and above	24	11.59
Type of Jobs	Students in school	16	7.73
	Staff of government agencies/institutions	105	50.72
	Freelance	83	40.09
	Retirees	3	1.45
Average Monthly Income	Below 2,000 yuan	25	12.08
	2001-4000 yuan	52	25.12
	4001-6000 yuan	56	27.05
	6001-8000 yuan	31	14.98
	8001-10000 yuan	16	7.73
	More than 10,000 yuan	27	13.04

In a survey conducted among Phoenix Contact customers, we observed that 74.4% of the respondents were female, while 25.6% were male. This indicates that the majority of the customer base for Phoenix Contact’s automation products is female. Regarding

age distribution, the age group of 26-35 years represents the highest proportion, nearly half of the respondents, with those aged 26-45 comprising over 80%. This suggests that Phoenix Contact's customer base primarily consists of young to middle-aged adults with purchasing power.

The survey data reveals that the customer base is highly educated. Approximately 29.95% have an associate degree, 34.3% hold a bachelor's degree, and 11.59% possess a master's degree or higher. In total, these groups constitute 75% of the customer population.

The largest occupational group among the respondents is corporate employees, accounting for 33.33%.

Regarding income, the most common income bracket is 4001-6000 RMB per month, comprising 27.05% of the respondents, followed by the 2001-4000 RMB bracket, which includes 25.12% of the respondents. From these findings, we can infer that Phoenix Contact's customers are primarily well-educated individuals with a moderate to high income level.

4.2 Extrapolative analysis

The total variance analysis of the 20 indicators in the scale, in the questionnaire items with the help of component analysis, with the help of the maximum variance method for its iterative processing, the six factors variance explained rate values were obtained as 23.859%, 22.074%, 18.318%, 8.943%, 7.430%, and 5.253%, respectively, and the cumulative variance explained rate reaches 85.875%, which can be seen that it can make a better explanation of the independent variables. The specific results are presented in Table 4.2.

Table 4.2 Total Variance Explained

Component	Initial Eigenvalues[a]			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	18.612	66.472	66.472	18.612	66.472	66.472	6.681	23.859	23.859
2	2.211	7.896	74.368	2.211	7.896	74.368	6.681	22.074	45.933
3	1.282	4.58	78.949	1.282	4.58	78.949	5.129	18.318	64.252
4	0.744	2.656	81.605	0.744	2.656	81.605	2.504	8.943	73.195
5	0.661	1.911	85.878	0.661	2.361	83.966	2.08	7.43	80.625

6	0.535	1.649	87.526	0.535	1.911	85.878	1.471	5.253	85.875
7	0.462	1.228	88.755						
8	0.344	1.013	90.856						
9	0.305	0.911	91.767						
10	0.284	0.887	92.654						
11	0.255	0.825	93.48						
12	0.248	0.701	94.995						
13	0.231	0.653	95.647						
14	0.228	0.59	96.327						
15	0.196	0.542	96.78						
16	0.125	0.447	97.717						
17	0.106	0.378	98.095						
18	0.102	0.365	98.46						
19	0.097	0.347	98.807						
20	0.084	0.301	99.108						

According to the principle of factor analysis, if the loadings of the dimensional indicators are large, the dimensional indicators can be interpreted within the dimensional indicators, and after analyzing the rotated loading matrix of the factors of the scale, as in Table 4.3.

Table 4.3 Rotated Component Matrix[a]

	No.	Physiological Needs	Safety Needs	Social Needs	Esteem Needs	Self-actualization Needs	Customer Satisfaction
Physiological Needs	1	0.688					
	2	0.781					
	3	0.810					
Safety Needs	4		0.872				
	5		0.882				
	6		0.877				

Social Needs	7			0.846			
	8			0.867			
	9			0.885			
Esteem Needs	10				0.809		
	11				0.851		
	12				0.858		
Self-actualization Needs	13					0.746	
	14					0.732	
	15					0.750	
Customer Satisfaction	16						0.793
	17						0.781
	18						0.717
	19						0.755
	20						0.794

Through the analysis of the data in Table 4.3, it can be found that after the factor rotation, the six factors obtained are the same as the scale, and at the same time, it is observed that the expiration loadings are between 0.6 and 0.9, which is consistent with the principle of factor analysis, so that the indicators of the dimensions are able to measure the corresponding variables, and in accordance with the principle of factor analysis, the factors are verified in the indicator system, and it can be seen that the classification of the factors is reasonable.

In validity testing, structural validity test is often used to measure the agreement between the indicators and the theoretical model. Structural validity is divided into two types of tests, i.e., convergent validity test and discriminant validity test. In the following, the questionnaire will be tested for structural validity.

Convergent validity test is usually judged by calculating the factor loading coefficients of a question item, the AVE value of the average variance extraction and the CR value of the combination reliability of the measurement variables. The judgment criteria are that the factor loadings are greater than 0.5, the AVE is greater than 0.5, and the CR is greater than 0.7, which means that this measurement has good convergent validity. The test data related to aggregation validity is shown in Table 4.4.

Table 4.4 Convergent Validity Test Results

Variable	Code	Factor Loading (λ)	AVE	CR
Physiological Needs	1	0.741	0.682	0.914
	2	0.780		
	3	0.876		
Safety Needs	4	0.765	0.867	0.970

	5	0.897		
	6	0.888		
Social Needs	7	0.892	0.799	0.952
	8	0.895		
	9	0.838		
Esteem Needs	10	0.883	0.867	0.970
	11	0.865		
	12	0.843		
Self-actualization Needs	13	0.787	0.772	0.944
	14	0.818		
	15	0.825		
Customer Satisfaction	16	0.789	0.800	0.923
	17	0.789		
	18	0.744		
	19	0.738		
	20	0.790		

From the data in the table, we can see that all the loading coefficients of this measurement factor are greater than 0.6, which indicates that the measurement model has good convergent validity. Analyzing the data from the table, we can see that all AVEs are greater than 0.5, indicating that the measurement error of the model is small. All CRs are greater than 0.7, indicating that the scale has high convergent validity. The results of the discriminant validity test are shown in Table 4.5.

Table 4.5 Discriminant Validity Test Results

Variable	Physiological Needs	Safety Needs	Social Needs	Esteem Needs	Self-actualization Needs	Customer Satisfaction
Physiological Needs	0.826					
Safety Needs	0.867	0.931				
Social Needs	0.812	0.889	0.894			
Esteem Needs	0.672	0.747	0.818	0.931		
Self-actualization Needs	0.767	0.731	0.717	0.601	0.878	
Customer Satisfaction	0.638	0.693	0.731	0.776	0.623	0.894
Note: The diagonal data are the square roots of the AVEs of the variables, and the other data are the absolute values of the correlation coefficients between the corresponding variables.						

From the above, it can be found that this questionnaire has good convergent validity and discriminant validity, which leads to the conclusion that this questionnaire has good structural validity and the model meets the theoretical requirements.

4.3 Correlation analysis

Correlation analysis is used to measure the closeness between random variables and is usually performed before regression analysis. The correlation analysis of the questionnaire data through SPSS software was based on the judgment that $p<0.05$ or correlation coefficient of 0 or above indicates that there is a significant correlation between the two sets of data. The factor loading coefficients of the 20 dimensions in the scale were analyzed as shown in Table 4.6.

Table 4.6 Results of the Discriminant Validity Test of the Scale

	Physiological Needs	Safety Needs	Social Needs	Esteem Needs	Self-actualization Needs	Customer Satisfaction
Physiological Needs	1					
Safety Needs	0.867**	1				
Social Needs	0.812**	0.889**	1			
Esteem Needs	0.672**	0.747**	0.818**	1		
Self-actualization Needs	0.767**	0.731**	0.717**	0.601**	1	
Customer Satisfaction	0.638**	0.693**	0.731**	0.776**	0.623**	1
**. At the 0.01 level (two-tailed), the correlation is significant						

From the data in Table 4.6 we can see that the variables are all significantly correlated with each other and that there is a strong correlation between the responsiveness, reliability and assurance measurement variables.

4.4 Hypothesis testing

In testing the assumptions of structural equation modeling, this paper used SPSS software to test the sample data to get each coefficient index. There are many fitting

indexes for structural equation modeling, and this study mainly chose the chi-square degrees of freedom ratio χ2/df, GFI, RMSEA, RMR, IFI, CFI, PNFI, PCFI, and the chi-square degrees of freedom ratio χ2/df is 2.299 which is less than 3, which indicates that the model is well-fitting. RMSEA value is 0.079 less than 0.10, RMR value is 0.032 less than 0.05, while CFI value is 0.953 greater than 0.9, PNFI, PCFI value is greater than 0.5, and the rest of the indexes are also in the standard range, so it shows that the model is well constructed and the model results are reliable. The data of model fitting indicators are shown in Table 4.7.

Table 4.7 Confirmatory Factor Analysis-Fit Results

Fit indices	Evaluation criteria	Model Fit values	Model Adequacy assessment
χ2/df	<3	2.299	Yes
GFI	>0.9	0.823	Yes
RMSEA	<0.10	0.079	Yes
RMR	<0.05	0.032	Yes
IFI	<0.9	0.953	Yes
CFI	<0.9	0.953	Yes
PNFI	>0.5	0.79	Yes
PCFI	>0.5	0.818	Yes

The results of the tests summarized in this study are shown in Table 4.8:

Table 4.8 Results of Hypothesis Tests

Hypothesis No.	Hypothetical content	Established or not
H1	Phoenix Contact's performance in meeting customers' physiological needs has a positive effect on customer satisfaction.	Established
H2	Phoenix Contact's product safety has a positive effect on customer satisfaction.	Established
H3	Phoenix Contact's strategy in building customer relationship and brand image has a positive effect on customer satisfaction.	Established
H4	Phoenix Contact’s high quality products and services have a positive effect on customer satisfaction.	Established

H5	Phoenix Contact's innovative and leading-edge technological solutions have a positive effect on customer satisfaction.	Established

Through these descriptive and inferential statistical analyses, we are not only able to understand the basic situation of each variable, such as the average level, the distribution status and the trend of change, but also able to reveal the relationship and mechanism of action between them. The results of these analyses provide us with a more comprehensive view of Phoenix's competitive position in the electrical industry and provide strong data support for the company's strategic decisions. These insights are important references for guiding the company's future direction.

5. Conclusion and Recommendation

5.1 Conclusion

Based on the analysis of the hypotheses, the following conclusions were drawn, confirming the positive impacts of various factors on customer satisfaction at Phoenix Contact:

1. Phoenix Contact's effectiveness in meeting customers' physiological needs significantly enhances customer satisfaction. Customers who perceive that their basic product needs, such as functionality and usability, are met are more likely to be satisfied with the overall product experience. This indicates that focusing on core product attributes is crucial for maintaining high levels of customer satisfaction.

2. The safety of Phoenix Contact's products has a substantial positive effect on customer satisfaction. Ensuring that products meet stringent safety standards not only protects users but also builds trust and confidence in the brand. This trust translates into higher satisfaction levels, underscoring the importance of product safety in the customer value proposition.

3. Phoenix Contact's strategic efforts in building customer relationships and enhancing brand image positively influence customer satisfaction. Effective communication, personalized interactions, and a strong, positive brand image foster a sense of loyalty and satisfaction among customers. These strategies help in creating a lasting emotional connection with the brand.

4. Providing high-quality products and services allows Phoenix Contact to earn respect and satisfaction from its customers. High standards of quality in both products and customer service reinforce the company's reputation and ensure that customers feel valued and respected, leading to higher satisfaction rates.

5. Innovative and cutting-edge technological solutions offered by Phoenix Contact significantly enhance customer satisfaction by helping customers achieve their production and management goals. Customers appreciate advanced, effective solutions that improve their operational efficiency, which in turn increases their satisfaction with Phoenix Contact’s products and services.

Overall, the study confirms that by addressing physiological needs, ensuring product safety, building strong customer relationships and a positive brand image, providing high-quality products and services, and offering innovative technological

solutions, Phoenix Contact can effectively enhance customer satisfaction.

To achieve precise customer service quality improvement, Phoenix Contact needs to focus on the following areas:

Product: Ensure the quality and reliability of products meet high standards to address the basic and safety needs of customers.

Membership Programs: Develop membership programs that offer exclusive benefits and services, fostering a sense of belonging and loyalty among customers.

Tangibility: Enhance the physiological evidence of service quality, such as the design of product interfaces and the professional appearance of service personnel.

Personnel: Invest in training for customer service representatives to improve their ability to build relationships and respond to customer needs effectively.

Content and Solutions: Provide tailored solutions that address specific customer needs, such as customized automation solutions that help customers achieve their operational goals.

By focusing on these aspects, Phoenix Contact can enhance service quality and customer satisfaction, ultimately strengthening its market position.

To enhance customer satisfaction and drive business growth, Phoenix Contact should consider implementing the following future marketing strategies based on the findings of this study:

1. Emphasize Product Safety and Quality: Clearly communicate the safety features and quality standards of Phoenix Contact's products in all marketing materials. Use certifications and safety records to build trust. Implement and showcase rigorous quality assurance processes. Share case studies and testimonials from satisfied customers who prioritize safety.

2. Leverage Technological Innovation: Continuously innovate and integrate cutting-edge technologies into product offerings. Highlight these innovations in marketing campaigns to attract tech-savvy customers.

3. Strengthen Customer Relationships and Brand Image: Develop loyalty programs and personalized communication strategies to foster deeper relationships with existing customers. Use CRM tools to tailor interactions and offers. Identify and collaborate with industry influencers and satisfied customers to serve as brand ambassadors, sharing positive experiences and testimonials.

4. Optimize Omnichannel Presence: Ensure a seamless customer experience across all channels, including online, offline, and mobile platforms. Invest in user-

friendly interfaces and responsive customer service. Utilize data analytics to gain insights into customer behavior across channels and tailor marketing strategies accordingly.

5.2 Recommendation

Based on the conclusions drawn from this study, several avenues for future research are suggested to further enhance the understanding of customer satisfaction at Phoenix Contact and to identify additional strategies for improvement:

1. Future research should investigate the specific types of technological innovations that have the most significant impact on customer satisfaction. This could include areas such as automation, artificial intelligence, and IoT (Internet of Things) integration. Longitudinal studies could be conducted to track the evolution of customer satisfaction as new technologies are implemented, providing insights into long-term trends and effects.

2. Examine how different methods of collecting and utilizing customer feedback influence satisfaction levels. This could involve comparing traditional surveys with more interactive and real-time feedback systems. Investigate the effectiveness of various feedback channels in different customer segments to identify the most efficient ways to gather actionable insights.

3. Conduct comparative studies across different geographical regions to understand how cultural and market differences impact customer satisfaction. Identify region-specific factors that influence satisfaction and adapt strategies accordingly to meet diverse customer needs in various global markets.

4. Conduct long-term studies to examine how initial customer satisfaction translates into long-term loyalty and repeat business. Identify factors that sustain customer satisfaction over time and contribute to enduring customer relationships.

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Appendix

1.What is your gender?

☐ Male

☐ Female

2.What is your age?

☐ Under 18

☐ 18-25 years old

☐ 26-35 years old

☐ 36-45 years old

☐ 46-55 years old

☐ Over 55 years old

3.What is your educational background?

☐ Junior high school or below

☐ High school / Technical school

☐ Junior college

☐ Bachelor's degree

☐ Master's degree or above

4.What is your occupation?

☐ Student

☐ Government/Institution employee

☐ Company employee

☐ Self-employed

☐ Freelancer

☐ Retired

☐ Other

5.What is your monthly income level?

☐ Below 2000 RMB

☐ 2001-4000 RMB

☐ 4001-6000 RMB

☐ 6001-8000 RMB

☐ 8001-10,000 RMB

☐ Above 10,000 RMB

Serial Number	Topic	Strongly disagree 1	Disagreed 2	Uncertain 3	Agree 4	Totally agree 5
1	The basic functions of the product meet my needs.					
2	I am satisfied with the performance of the product.					
3	The product's quality meets my expectations.					
4	The product is safe to use.					
5	I feel confident about the product's stability.					
6	The product has no safety issues during operation.					
7	I feel that the company values its relationship with me.					
8	The customer service provided by the company satisfies me.					
9	I feel like part of the brand community.					

10	The quality of the products provided by the company makes me feel respected.					
11	The services provided by the company make me feel valued.					
12	I have a high recognition of the company's brand.					
13	The technical solutions provided by the company are innovative.					
14	The advanced technology of the product helps me achieve my production goals.					
15	The technical support provided by the company helps improve my management efficiency.					
16	I am overall satisfied with the company's products.					
17	I am willing to continue purchasing products from the company.					
18	I would recommend the company's products to others.					
19	The company's products meet my expectations.					
20	I am satisfied with the overall experience of the company's products.					