

Chapter 2

Literature Review

The researcher has studied concepts, theories and related research used to determine the research guidelines as follows:

1. Concept of Electronic non-parking Toll System
2. Overview of Marketing-related Theories
3. STP Theory
4. 4Ps Theory
5. 4Cs Theory
6. Innovative Marketing Strategies
7. Related Research

Concept of Electronic non-parking Toll System

1. ETC

The Electronic Non-Parking Toll System (ETC) was one of the main services of the Intelligent Transportation System (ITS). It was an electronic automatic toll system for roads, bridges, and tunnels. It used special short-range microwave communication technology to exchange information with the roadside unit (RSU) and automatically identified the vehicle. It used electronic payment methods to automatically complete the vehicle toll deduction.

2. Current application status of ETC abroad

ETC technology rapidly developed in the United States, Europe, Japan, and Australia. They invested a lot of material and financial resources in the ETC field to continuously upgrade the actual capacity of ETC, effectively alleviated traffic jams in China, and ETC also became a national economic industry, promoting the export of domestic technology.

ETC technology had a history of development for many years in foreign countries. Since Norway first applied it from the laboratory to practical engineering projects, in the past 20 years, governments and enterprises all over the world attached great importance to this technology and developed and adopted this system to replace the original manual or semi-manual charging method. The United States, Europe, Japan, and many other countries and regions conducted thorough

studies on the no parking charge system's research and development technology, engineering implementation, and standard specifications. The electronic charging system had local networking and gradually formed the scale, and submitted draft international standards for no parking fees, winning a wide range of manufacturers' support.

In the research stage, Philip E. Agre (1994, pp. 740-760) showed that in order to alleviate the toll mechanism and strengthen the regulation of vehicles, an intelligent highway system could be introduced to improve the safety of vehicles and reduce the time cost of owners. This research paved the way for the development of ETC. Klodzinski, et al. (2002, pp. 173-181) created the revenue and expense database of ITS projects through important evaluations of ITS systems and research on ETC systems, thus affirming the profitability and feasibility of the ETC system. At this time, the research focused on hypothesis research and empirical research, and there were few indefinite studies on ETC products, such as analyzing who the ultimate beneficiary of ETC products was. At this stage, the representative study M-Deek (1996) showed that the ETC system could improve capacity, thus speeding up the benefits. Jianling Li (1998) from the perspective of environmental benefits, showed that whenever an ETC system existed, air pollution could be reduced.

In the application stage, from the end of the 20th century to today, Heiry M. d ma y r (2006) analyzed the parking charge system in the United States, Europe, and other places, showing that the ETC system could not only adjust road demand but also vehicle speed. It caused a subversion of the charging system, and the cost reduction and convenience were self-evident.

1) The United States

The United States was one of the countries with the most highways in the world, boasting 88,000 kilometers of expressways, which accounted for about one-third of the world's total expressways, connecting all cities with more than 50,000 people. In this case, electronic non-parking charging became an efficient way for American states to address road congestion and recover road investment and maintenance costs. The E-ZPass system, adopted in New York and other regions, became the most famous networked electronic non-parking charging system in the United States. It was a committee composed of seven transport agencies (E-ZPass Interagency Group) for most tunnels, bridges, and toll booths in New York. In July 1997, the final operation plan of the "E-ZPass" project began to be put into practice and operation. Since the opening of the E-ZPass system, the transaction volume of ETC continued to grow. By December 1998, after only one and a half years, the

electronic non-parking charging network of 23 dedicated ETC lanes had assumed 43% of the whole monthly average transaction volume, and even reached 55% to 60% during peak hours. The benefits and attractions of the networked electronic non-parking charging system were reflected. The E-ZPass system adopted two modes: special lanes and mixed lanes, with toll collectors on duty.

2) European countries

In the 1980s, European countries began implementing the electric toll system known as Telepass. It could only be used on highways within the same highway group company's road network. During this period, the electric toll system generally used the first generation of read-only technology. Cars had tags, and the charging system was managed by the center, adopting a payment method.

From 1990 to the end of 1995, European countries mainly implemented the second generation of the electricity charging system. This system was characterized by the 5.8GHz frequency recommended by the European Union DSRC and readable, writable electronic labels. Other notable projects included the BRISA open electronic charging system in Portugal and Milan, Italy, as well as the closed electricity toll system on Rome's highways. In Italy, 30% of toll booths used toll parking, capable of processing 30 cars per minute. Italy's Autostradas' Telepass system can be considered the world's largest non-parking fee-free network, with 500,000 transactions a day.

Electronic toll systems were difficult to gain widespread acceptance in European countries, primarily due to privacy concerns and the potential additional burden on vehicle owners.

3. Domestic application status of ETC

The application of ETC technology in China began in 1996, and the projects built successively included ETC lanes on local toll roads in Foshan, Nanhai, and Shunde in Guangdong province, Jiangsu Shanghai-Nanjing Expressway, Beijing Capital Airport Expressway, etc. However, some of these projects were not really put into use after completion and were also used for point charges. The application of ETC in the expressway network toll began with the "Guangdong Cartoon" project in Guangdong Province in 2003, which was the earliest successful expressway ETC network toll in China.

1) Guangdong Province

In 2003, Guangdong province invested 330 million yuan to open 88 ETC lanes in the province. The project covered all 6 networked charging areas in Guangdong province, set up 3 regional charging centers, and successfully implemented the dual-chip and dual-interface ETC network charging technology. In the provincial toll road, the

combination of electronic non-parking toll and manual semi-automatic toll network toll allowed users with the highway special payment card in the province to implement the "unified toll, system ledger" on the provincial expressway. The network fees followed the principle of "unified planning, unified standard, unified card issuance, unified charging, and unified settlement." At that time, the system was working well.

2) Shandong Province

On December 18, 2008, the ETC (no parking toll) system, built by Shandong Expressway Group with 12 million yuan, was fully completed and opened. The main toll stations in the municipal government center areas under the jurisdiction of the expressway group all realized no parking toll, covering 1200 kilometers of expressways in the whole province. The ETC electronic non-parking charging system, through the on-board unit installed on the windshield of the vehicle, used wireless communication and computing, machine networking technology for settlement processing, and could complete the charging passage without cash or parking. The speed generally did not exceed 30 km/day.

The ETC system of Shandong Expressway Group was constructed in two stages. In the first stage, in the second chapter of the Group, 8 ETC lanes in Jinan North, Jinan East, Jinan Airport, and Qingdao were completed and opened in pilot operation. This was the first non-stop expressway toll collection system in Shandong province. As the system was located on an important Olympic passageway connecting Beijing and Qingdao, it made a positive contribution to welcoming the Olympic Games, solving traffic bottlenecks, and establishing the image of Shandong. Based on this success, the High-speed Group implemented the second stage of ETC system construction, and 9 toll stations, including Jinan West, Dezhou, Taian West, Qufu, Zaozhuang, Jiqing Expressway, Zibo, Weifang, Jili Expressway, Laiwu North, and Weilu Expressway, implemented non-parking charging. In this way, the Shandong Expressway Group in the central cities achieved automatic tolls without parking, realizing the "city." The ETC system construction in Shandong province reached the leading level in China.

Overview of Marketing-related Theories

1. Confirmation of the target market

McCarthy, a famous marketing scholar, proposed that consumers should be regarded as a specific group called the target market. Through market segmentation,

it was conducive to clarifying the target market, and through the application of marketing strategies, it was good to meet the needs of the target market. Specifically, the target market was identified through market segmentation, and the enterprise prepared corresponding products and services to meet the needs of one or several sub-markets. Target market selection generally used the following three types of policies.

1) Undifferentiated marketing strategy

No difference meant that the whole market was unified and identical, with only common points, no differences, and the methods and strategies used for the marketing of this target market could be the same. At that time, there were few markets without differences, especially in the era of the knowledge economy, where people's demands changed rapidly, and the market was not only not unified but also very different

2) Differentiate marketing strategies

Differential marketing strategy involved subdividing the whole market into a number of markets, designing different products for different sub-markets, and formulating different marketing strategies to meet different consumer needs.

3) Centralized marketing strategy

In the former market conditions, centralized markets preferred to select a few target groups as the main direction for enterprises. Because if companies took full care of all the markets, it was unrealistic to eat all the cakes. Only when a few markets could be grasped, could they grasp the comparative advantage and obtain a relatively favorable position. After that, they could consider selecting several more target groups as the development goals of the enterprise. The three target markets adopted different marketing models, each with its own advantages and disadvantages. As an enterprise, when selecting the target market, it had to consider the current situation and the problems it might face, in order to find the goal suitable for the development of the enterprise. The process of finding the goal was difficult and tortuous.

2. Marketing combination strategy

Marketing combination strategy referred to the optimal combination and comprehensive application of some controllable factors that affected enterprise marketing activities on the basis of market positioning to meet the needs of target customers. Marketing portfolio was a set of marketing tools for enterprises to seek their marketing goals from the target market. The following is a review of the evolution of the marketing strategy and the marketing mix.

After nearly 100 years of development, the enterprise marketing theory had formed a relatively complete theoretical body. In the middle of the 20th century, with the intensification of market competition, more and more enterprises realized that reasonable market segmentation could find more accurate market positioning for the development of enterprises. Therefore, Professor Wended Smith proposed the market segmentation strategy. Subsequently, McCarthy clarified the main factors that enterprises needed to pay close attention to in their marketing activities and put forward the 4P marketing theory, which further and effectively promoted the development of the marketing theory. At present, the more mainstream marketing theory mainly includes the market segmentation theory (STP theory), 4P theory, 6P theory, 4C theory, 4R theory, and so on.

From the evolution process of 4PS-4CS-4RS, competition played a leading role in it. It was precisely because of the change in the competitive environment, with the focus of the form of competition shifting from early separate competition to the present win-win competition. Win-win competition paid more attention to maintaining a good relationship with stakeholders, paid more attention to consumer requirements and consumer demand, and laid more emphasis on the adaptation of marketing theory to the uncertainty of the external world. Therefore, the change in marketing theory from 4PS-4CS-4RS was a direct reflection of the changing external competitive environment. Through the analysis of various marketing theories, we knew that the core of 4PS theory was enterprises, the core of 4CS theory was consumers, and the core of 4RS theory was competitors. The 4PS, 4CS, and 4RS theories were not replaced but constantly improved and developed. 4PS, 4CS, and 4RS theories would be applied differently in different enterprises.

4PS theory was considered from the perspective of enterprises and 4C, which was a basic framework of marketing. The combination of products, prices, channels, and promotion proposed by 4PS was unavoidable for any marketing activities of any enterprise. 4CS theories thought from the perspective of customers, but they did not focus on the perspective of the overall operation of the enterprise, let alone on analyzing the problem from the core purpose of marketing. Both 4PS theory and 4CS theory were static descriptions of the key elements in the marketing process, and they did not express them into a dynamic process from the perspective of the core purpose of marketing. The 4RS theory was the result of the comprehensive extraction of the two, which met the core of marketing, and it was a dynamic process. However, the 4RS theory was not meant to replace the 4PS and 4CS theory but to innovate and develop on the basis of the 4PS and 4CS theory.

STP Theory

Market segmentation theory was originally proposed by the American marketer Wendell Smith. Afterward, Philip Kotler further developed and improved it, gradually forming a relatively complete STP theory. The STP theory mainly included three components: market segmentation (Segmentation), target market selection (Targeting), and market positioning (Positioning).

Wendell Smith believed that, because people's desires and needs were difficult to exhaust, no enterprise could effectively meet all the various needs of the market. In this case, enterprises engaged in targeted market segmentation activities to define their market scope. They concentrated their superior products and resources on marketing to specific market segments, enabling them to establish a core competitive advantage that other competitors found difficult to replicate. This promoted the sustainable development of enterprises. Wendell Smith pointed out that the basis and premise of market segmentation for enterprises lay in a comprehensive understanding of the market and careful market research planning to conduct first-line market research activities.

Only with an understanding of the market could enterprises clearly divide the market and further define their target market. According to Sarah Ann Wheeler's research, the choice of the target market was mainly based on the advantages of the enterprise's own products or services and an understanding of the changing demand within that market segment. This choice also served as a key basis for enterprises to enter the target market. Different market demand characteristics required enterprises to provide differentiated products and services, thereby establishing a unique position in the target market. After clarifying the target market, enterprises also needed to consider the position they should occupy in the eyes of consumers and the brand image they should create. This involved the market positioning of the enterprise. Through clear market positioning, consumers could easily distinguish the enterprise's brands from others in the market in the short term.

However, some scholars, such as Kristensson, et al. (2008, pp. 474-491), believed that although market segmentation theory provided a feasible way of market analysis and selection in complex market competition, not all enterprises could conduct market research and analysis according to the methods and ideas provided by this theory. Their research concluded that market segmentation activities were generally carried out by large and medium-sized enterprises, while smaller enterprises conducted fewer targeted market segmentation activities due to

limitations in capital, talent, and cost. This limitation affected the universality of the theory in practice. Ziótkowska (2021) found that enterprises had different standards for market segmentation, and the markets segmented by different enterprises varied, often with overlaps. Consequently, enterprises might face fierce market competition in the segmented market, investing significant resources despite the risk of failure.

Even so, the emergence of STP theory still provided a new way of thinking for enterprises to conduct marketing activities, gaining widespread attention and recognition from the business community. Currently, in the process of carrying out marketing activities, most major enterprises worldwide would first consider whether the market played to their advantages. They would then make a reasonable segmentation of the market and proceed with further marketing efforts. In this paper, we will combine the advantages of Jiangsu X Technology Co., Ltd. and apply STP theory to standard market segmentation to clarify the company's target market for the future. This approach will allow us to adopt a more targeted marketing strategy and improve the effectiveness of marketing activities.

4Ps Theory

Most western scholars believed that the essence of marketing activities lay in the high attention to market demand and the timely, accurate, and effective grasp of these market demands. Maintaining a high sensitivity to market demand was the basis of enterprise marketing activities.

McCarthy (1960, p. 292), a famous American management scientist, put forward the 4P marketing combination theory, which laid the foundation for the development of modern marketing theory. McCarthy believed that the ultimate goal of enterprise marketing was to transfer the value of the product to the final consumer, so in the marketing process, enterprises needed to pay attention to some factors that had an important impact on consumers. Specifically, McCarthy pointed out that enterprises in their marketing activities needed to pay high attention to their products, sales prices, sales channels, and promotional activities to realize the value presentation and transmission to consumers. 4P was the first-letter abbreviation of the relevant important marketing elements, namely product (product), price (price), channel (place), and promotion (promotion).

In 4P, the product quality and quality were the foundation; enterprise products had to be recognized by the market, have no safety risks or quality problems, and meet the specific needs of consumers. Based marketing activities were

effective management activities. Secondly, the price factor was an important factor for consumers to focus on the purchase choice; the same product consumers would certainly choose the cheaper products, so it required the development of a flexible price strategy. Again, the channel was an important support to reach the final consumer; enterprise products or services in channel selection and construction had to meet the enterprise cost requirements of market development and other constraints, so as to finally realize the market value of enterprise products or services. Finally, promotion was a way for enterprises to expand the sales intensity of products or services and attract more attention from target consumers, which had a direct promotional effect on enterprises to expand the existing market share. In the 1980s, with the change in the business environment, Philip Kotler added public relations and public opinion on the basis of the 4P theory (public relations or public opinion), politics and power (politics or power) as these two factors, thus developing the 4P marketing combination strategy into the 6P marketing strategy combination theory. As an important part of social and economic development, enterprises assumed social responsibilities.

The maintenance of social public relations also helped to improve the market image and create a good corporate brand. In addition, with the attention to economic operation and the operation of government departments, further attention was given to the change in the political environment and its impact on enterprise marketing activities.

4Cs Theory

Since McCarthy put forward the 4P marketing combination theory, both the academic and business circles developed a strong interest in it and continued to pay attention to the 4P theory. Many enterprises also began to design enterprise marketing strategies based on the theory of 4P marketing combination to improve the effectiveness of enterprise marketing activities. After years of development and practice, the 4P marketing strategy combination theory was widely recognized in the business community. However, even so, some scholars put forward different views on the 4P theory.

In 1990, Robert Lauberbom introduced the 4C marketing theory, which provided an alternative perspective for improving the 4P marketing strategy theory. Robert Lauberbom believed that in addition to the 4Ps, enterprises also needed to focus on the customer (customer), cost (cost), convenience (convenience), and

communication (communication) in the marketing process. According to the 4C theory, the primary focus was on customers and their changing demands, which served as the basis for enterprise marketing activities, followed by considerations of products and prices, among other factors.

Simultaneously, Robert Lauberbom pointed out that in addition to customers, the cost of marketing activities was another crucial consideration for enterprises, as investing unlimited marketing costs without considering the marketing effectiveness was not feasible. Moreover, lower costs could also translate into greater convenience for customers, allowing them to access enterprise products and services through various channels at a lower cost.

Lastly, enterprises needed to maintain continuous communication with key customers to foster and maintain relationships, as well as to stay abreast of changes in customer needs. This understanding helped enterprises adapt to shifts in market demand and implement corresponding product or service innovations. The 4C marketing combination strategy aimed to complement and enhance existing 4P and 6P marketing combination theories. In addition to the traditional 4Ps, enterprises could further analyze marketing strategies from a 4C perspective to improve the effectiveness of marketing activities.

In the course of this paper, we combined the STP market segmentation theory, the 4P marketing combination theory, and the 4C marketing combination theory to analyze ETC project marketing activities and the existing problems. We also proposed corresponding solutions to further enhance the marketing performance of ETC.

Innovative Marketing Strategies

The marketing strategies adopted by most companies in the market were basically promoted through two channels: one was promoted through cooperation with banks, and the other was promoted through cooperation with high-speed toll stations. The advantage of these two promotion methods was high trust and more recognition by the public. The disadvantage was passive marketing, waiting for customers to come to the door, fewer outlets, high promotion costs, problems, and difficult after-sales service, while banks and toll stations lacked enough after-sales personnel to provide service because they still had their own work to solve, which brought a very bad experience to ETC customers.

First, Shaanxi A Technology Co., Ltd., through market research, fully understood the advantages and disadvantages of the previous company's promotion. The launch of a market-oriented marketing method was to develop and promote products according to customer needs. The advantage of this was that it could better meet customer needs, make customers satisfied, let the product play its maximum effect, and increase customer satisfaction. For example, many ETC products on the market were prepaid ETC, which could not be used if they had money, or the operation was very complex, and many customers would not use them. Shaanxi A Technology Company developed ETC products that did not need to be recharged according to the market situation and customer needs. Customers could consume first and then pay later. They only needed to put the money in the ETC-bound card, and the bank would automatically deduct the high-speed fee the next day. Both saved time and trouble, but also were convenient for customers.

Second, they launched differentiated products to establish a unique competitive advantage in the market. Shaanxi A Technology Company, through market research, found that most of the ETC products on the market were dual-chip machines, neither beautiful nor practical, so they specially launched a single-piece machine, a card machine integrated, both beautiful and practical, once launched, it was widely praised. In terms of pricing strategy, it was higher than that of general competitors. They established a high-end brand image from the very beginning so that customers could realize the differences in product quality and performance from the price.

Third, they broadened the marketing channels, different from the previous bank and toll station cooperation. Instead, they directly recruited agents to face to face. Because agents were far more than banks and toll stations, they had better service, lower cost, and a better customer experience. Fourth, they developed customers to become promoters. Because the customer himself was the real user of ETC, his experience was more convincing. In addition, there were many similar customers around customers, so it was not only difficult for customers to find new customers, but also better and easier. They just needed to give customers a certain promotion commission, and they were more willing to share.

Related Studies and Articles

The investigators studied the concepts, theories, and related studies used to determine research guidelines as follows:

Under the new situation, the development research and analysis of high-speed ETC marketing strategy pointed out that the development situation of high-speed ETC in China was generally severe, and the main problem lay in the service ability of products and the marketing level of enterprises. In terms of product service ability, ETC technology was used in provincial groups, and many ETC cards could only be effective in the province, which limited the travel of the entire Chinese economy. In terms of the marketing level of enterprises, modern enterprises often adhered to the old sales tradition, adopted little or no publicity, but the rapid changes in the situation at home and abroad had already lost the effectiveness of this kind of marketing model, so consumers did not buy because they did not understand. Therefore, if high-speed ETC wanted to regain vitality in China, it had to work hard on product technology, constantly expand the product service ability, and strive for a card in the whole country instead of a local role. In addition, enterprises also needed to pay attention to the publicity of ETC products, constantly transform the marketing strategy of ETC products, and finally reach the state of one card for each owner.

On the application status and development of e-commerce in the expressway ETC toll, the paper pointed out the operation of the expressway toll station. According to the principle of e-commerce and the actual situation of the toll application, it further focused on the working principle and system composition of the electronic non-parking toll technology (ETC) and its application in the expressway. The paper discussed the workflow of the ETC system and the characteristics of the charging system. With the continuous improvement of the current level of science and technology, the development of ETC gradually became about improving the traffic efficiency of toll stations, improving non-cash charges and non-cash settlement, and their benefits. This further solved the only way for vehicles to pass quickly during rush hours.

According to the actual cases of ETC online and offline marketing competition carried out by six commercial banks, Industrial, Agricultural, China, Construction, Communications, and Postal Savings, and other third-party cooperative institutions in Tianjin from June to August 2019, combined with Tianjin expressway networking toll management center (hereinafter referred to as the "network center") and the Tianjin branch of the people's bank of trade comparison data, the analysis of pure offline,

pure online, online combining the characteristics of three kinds of ETC marketing, and comparative analysis of their advantages and disadvantages and marketing effect. Then, through the data group analysis, the characteristics of the three patterns were restored. Finally, three suggestions on how to transform the effect of online and offline marketing into the source of the actual profits of commercial banks were put forward: scenario-based precision marketing, personalized credit granting, and deep mining of big data.

Robert (2004, pp. 333-347) took Internet enterprises as the research object and specifically analyzed the Internet service type. Company's marketing-related issues. The research results showed that for service-oriented technology enterprises, their marketing was more about service marketing and relationship marketing. In the process of communication with customers, enterprises needed to pay attention to standardizing the service attitude and service standards to win the recognition of customers with good service output.

So Young (2007, pp. 10-20) took German and French science and technology enterprises as the research object and analyzed science and technology enterprises' marketing management problems in the global market. The research showed that multinational science and technology enterprises, in the process of marketing, needed to focus on different countries and regions' consumer groups' usage habits, cultural habits, and other factors. In product design, channel construction, and promotion, they needed to comprehensively consider and adjust measures to local conditions to develop enterprise marketing strategies, rather than simply designing marketing strategies from the perspective of company cost control.

Hallberg (2000, pp. 1-26) studied European small and medium-scale departments' marketing management organizational structure for European small and medium-scale departments. The marketing practice of the technology company was studied. The result was that most science and technology enterprises had problems such as insufficient attention to marketing activities, lack of professional marketing organizational structure, and an imperfect marketing talent team. Therefore, the research pointed out that science and technology enterprises, like industrial and commercial enterprises, also needed to carry out marketing activities, especially in the context of increasingly fierce market competition, good organization and talent team guarantees were the basis for enterprises to carry out marketing activities.

Jones, et al. (2013, pp. 671-697) studied the marketing issues of small and medium-sized technology enterprises from the perspective of network marketing. According to the research results, small and medium-sized technology enterprises

had their own unique features in the operation process, such as their clear target market, high technology content of products and services, high market growth, and high risk coexisting. Therefore, small and medium-sized technology enterprises should pay more attention to the marketing work of enterprises and make full use of network marketing to help the market development of enterprises. The research pointed out that network marketing could make the market positioning of small and medium-sized technology enterprises clearer and help reduce the marketing cost of enterprises. At the same time, network marketing could also help small and medium-sized technology enterprises to break the restrictions of enterprise geographical location and gradually explore the market of other provinces and countries. Therefore, network marketing was an effective marketing method that domestic small and medium-sized enterprises could choose.

Creech, et al. (2014, pp. 366-378) took ecological science and technology enterprises as the research sample and analyzed the ecological type science and technology enterprise market. Field marketing should pay attention to the related issues. The research believed that the marketing concept of ecological technology enterprises must adhere to the ecological marketing concept of sustainable development concept, the concept of consumer-oriented market cooperation, and the ecological culture concept with corporate social responsibility as the core. In terms of product strategy, eco-technology enterprises should develop and produce high-tech green products, formulate product price strategies that consumers can reasonably perceive, and flexibly use various pricing strategies to set the final price of products or services based on the price that consumers can recognize. Finally, eco-technology enterprises also needed to develop distribution channels, gradually establish production and marketing alliances, and continuously promote promotion means of publicity and sales.

Weng, et al. (2015, pp. 8934-8949) took the Beijing ETC market as the research object and specifically analyzed the ETC Manufacturing Service Company. Marketing related to the coordination of the market. According to the research, most ETC manufacturing and service enterprises encountered the following problems in marketing: first, the sales growth rate of new users was slow, and the brand publicity was insufficient; second, the construction of marketing channels lagged behind, and the number of channel outlets was small; third, the number of ETC customer service was limited. To this end, the study believed that for economic issues, ETC manufacturers needed to enhance product attractiveness and market adhesion,

increase publicity, enhance social awareness, and introduce support policies to effectively promote the development of ETC users.

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