

Research on High-speed ETC Marketing in Kunming Region

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Abstract: With the increasing application of science and technology in China, ETC technology has been applied to expressways with high efficiency, which can alleviate serious traffic problems. It is also an inevitable product in the era of science and technology. The chaotic market environment and uneven product quality give consumers a hesitant and wait-and-see attitude towards product selection; plus how the distributor should expand the marketing scope, relying on recognized marketing strategies and obtaining results through marketing means. The A toll station and B service area in Kunming are taken as the main research objects, and targeted analysis means were optimized and improved. The problems existing in the marketing of ETC projects of important outlets in Kunming have been analyzed and summarized, and innovative marketing strategies suitable for ETC projects of expressway in Kunming are put forward.

Keywords: ETC technology, Marketing, Micro environment

1. Introduction

1.1 Purpose of the study

According to the notice issued by the General Office of the State Council in 2020 in China, the cancellation of provincial toll stations and vigorously promoting the development of ETC are two big issues. The notice claimed that the national ETC utilization rate will reach more than 90% by the end of 2021. The introduction of this national policy provides political and legal support for customers with the card, in order to effectively seize the ETC market share, to seize the favorable opportunity; while looking for innovative marketing strategy, to adapt to the development of today's environment, to complete the goals and tasks set by the country. This is of certain research significance to improve people's happiness and satisfaction, solving the problem of low efficiency of manual charging and alleviating traffic congestion to a certain extent[1].

1.2 The problem & Research objectives

Choosing a service area of Kunming Expressway as a sample, analyze the current development of a service area, find and study the problems and the dynamic influence on macro marketing environment of the ETC system, use marketing theoretical knowledge and relevant literature data, and propose a series of targeted solutions to strengthen the marketing efforts. The research purpose of this paper is to better promote ETC marketing, improve the ETC penetration rate, and then respond to the national call, which has certain practical significance to promoting the sustainable and healthy development of ETC industry. However, due to the limited samples collected, the data may be biased.

Objectives of this study are: Research Questions?

- 1) To study the barriers of ETC Marketing
- 2) To analyze the problems exist in ETC Marketing in Kunming
- 3) To analyze how to make a effective ETC industry marketing in Kunming

2. Literature review

2.1 Introduction of Marketing Theory

The management process of groups and individuals replacing value, products and information to adapt to market needs is a kind of marketing[2]. Marketing strategy refers to the target market strategy that enterprises choose and annexation in the face of the future market environment according to their own conditions [3]. At present, marketing has become an applied edge management discipline that combines with enterprise management and with various disciplines[4].Nowadays, the academic circle has formed a marketing theory system that is with market segmentation theory and marketing combination theory as the core. The following will use the learned marketing theory to review and analyze, and further combine the marketing theories and methods related to ETC.Marketing includes macro marketing and micro marketing, so to study and analyze the problems existing in ETC in marketing from two aspects of micro environmental factors and macro environmental factors, and find out deficiencies, analyze data, summarize and integrate innovation strategies.

2.2 Relevant research

The Electronic Non-Parking Charge System (hereinafter called the ETC System)[3]It is an electronic device that the staff or owner of the vehicle in the front of the rearview mirror in the front cockpit of the vehicle) to connect the Bluetooth of the owner's mobile phone and can be used after activation.When the vehicle enters the highway, the data in the OBU is read to the vehicle information through DSRC technology, the vehicle passes through the RSU(side equipment) will exchange information with the OBU identified vehicle information, and then RSU passes the signal that the vehicle can safely pass to the lane controller, the lane controller operation device after the vehicle has passed the signal to the electronic charging background for liquidation, the background will execute the deduction process in the owner bank card.The whole induction operation process is less than a few seconds, and the main workload is automatically completed the charging process by the computer. Therefore, the vehicle maintains a stable speed within a certain range when it passes the charging lane and passes directly and safely [5]

The ETC system is nationally universal and vulnerable to the external environment in the marketing process.Therefore, the external environment must be improved to promote the benign development of ETC system marketing.Due to the instability and diversity of the external environment, PEST analysis will be used to study the external effects of the ETC system.

When analyzing the marketing background of ETC system, it is usually analyzed by the political, economic, social and technological factors to grasp the external environment and evaluation, as shown in Figure 1.

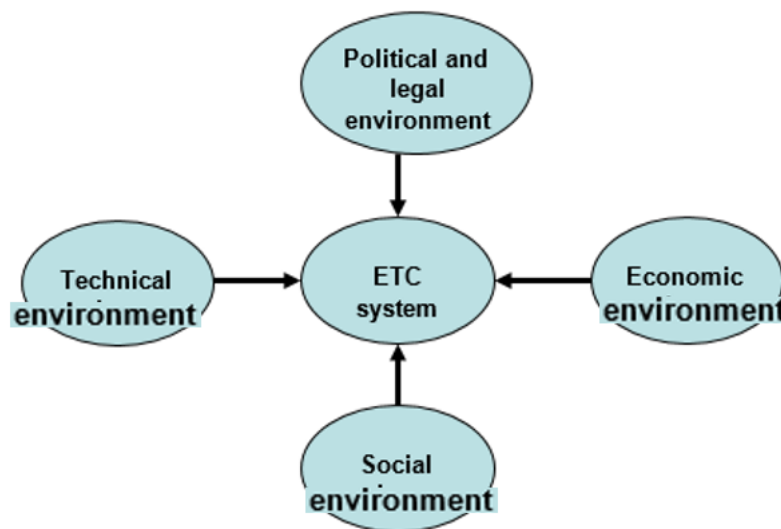


Figure 1: Macro environment of ETC system marketing

From the economic environment perspective, ETC system marketing brings new impetus.In Fig. 2,

the layout of ETC industry chain is gradually improved. Due to the huge potential of the total Chinese automobile ETC equipment installation and the development space of ETC industry, ETC equipment raw material manufacturers can sell a large number of raw materials to ETC equipment manufacturers.

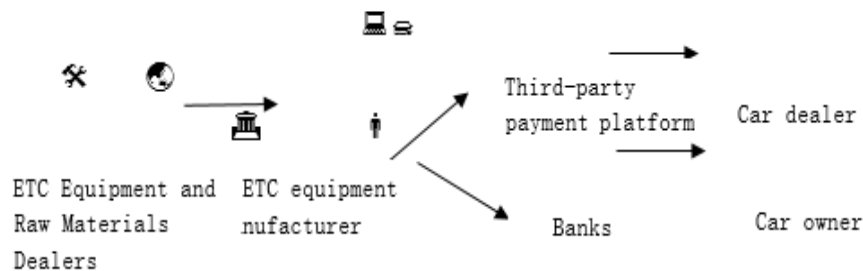


Figure 2: Layout of ETC industrial chain

3. Research methodology

3.1 Research design

3.1.1 Research philosophy and design

The research philosophy of this study is Interpretivism, since the study is mainly based on interviews and observation data collection methods .

The research focus on the Marketing of ETC in Kunming. Although Chinese government has taken action to spread the usage of ETC systems in China, there are some problems which are the barriers to the successful sales. The study focus on the sample of 3 customers in Kunming. The study aims to find out problems and barriers in choosing ETC system in Kunming .

3.1.2 Participant and setting

The participants are 3 ETC customers in Kunming. All of them has used ETC system for more than 3 months.

The participants were interviewed at the high-speed service , when they had rest . The interviews were made in person, while the questions were pre-determined.

3.1.3 Data collection

The study mainly collect the data from interviews in which 3 participants took part in , and they were asked 5 open questions perspective. The data shows the individual opinion about ETC, and makes it possible to analyze the data.

Besides, the study also uses former experiences to do the analysis of ETC marketing .It is also an important part of the research.

Furthermore, since it is not so easy to make interviews on high-way , just 3 participants were chosen to be interviewed. There may be limited thoughts of thinking. There is also a possibility that the study can failed to express all the thoughts of whole populations.

3.2 Data analysis and interpretation

3.2.1 Organising the data

This study is a qualitative analysis, which will be conducted through analytic interviews in the manner of qualitative research. ATLAS.ti is a powerful workbench that can analyze a large amount of text, graphics, audio and video data in qualitative analysis. At the same time, it can also help you arrange, reassemble and manage the collected materials in an innovative and systematic way. ATLAS.ti needs to drag the code onto the selected data to complete the coding. Then through the object manager, project browser and symbiosis resource manager, the object can easily browse the project data.

3.2.2 Using codes to generate categories, themes and patterns

Table 1: Qualitative research interview outline

1	Feelings of ETC
2	Advantages of ETC
3	Worries of ETC
4	Challenges of ETC

After the interview, the interviewee’s records were sorted and coded, and after several invalid answer were put forward, they were coded with valid Q&A to create a document. After reflecting and observing and finding out the inner connection, the document was imported into Atlas.ti software, as shown in Table 1.

Table 2: Developing the categories and properties from codes

Category	Codes	ATTITUDE
Feelings of ETC	Highly used	positive
	Of course	positive
	It’s hard to say	negative
	Without doubt	positive
	Hardly make mistakes	positive
	Sure	positive
	It’s good	positive
Advantages of ETC	Generally	negative
	Saving time	positive
	Convenient	positive
	Fast	positive
	Easy to pay fees	positive
	Discount	positive
Worries of ETC	Traditional less and less	positive
	Over charging	negative
	Wrong way	negative
	Over time	negative
Challenges of ETC	Broken frequently	negative
	It depends	negative
	Don’t drive on high way frequently	negative
	Give it up	negative

From the table 2 we can draw a conclusion:

Feelings of ETC: There are 6 “positive” and 2 “negative”. It indicates that general people in China hold a positive attitude towards ETC. If government and marketing promote more, more people will choose.

Advantages of ETC: According to the code some people focus on time-saving, convenient, discount. Some think ETC windows become more and more, so have to fix.

Worries of ETC: The main worries of ETC are overcharging, passing slowly, technical problems . Some worries that the machine is out of service frequently. It’s a good opportunity for ETC company to update the techniques and reduce customers’ worries.

Challenges of ETC: some people is not sure about the quality of ETC, some people don’t drive on the high way so frequently. If it causes trouble to people, they may give it up. There are also the challenges of ETC.

3.3 Problems existing in ETC system marketing in Kunming

From the interviews and code analysis, there are some problems existing in ETC system marketing

(1) Low trust and Low utilization rate

Early ETC procedures are complicated, and consumers' bad impression of it leads to a reduction in trust. Through investigation, the number of owners using ETC is limited. In the application procedures, consumers must go to the bank to handle a credit card, and then submit relevant certificates, policies

and other materials to apply. After the application is passed, make an appointment for a specific installation place and time, and the staff will conduct the on-board equipment OBU. needed to install ETC In addition, the ETC needs to pay a certain amount of equipment fee or deposit a certain amount of "reserve for payment" in the bank card.

(2) Low awareness and less widespread

Due to herd psychology, consumers generally have a bad impression of ETC, so the probability of it being actively popularized by the public is not high, forming that the public does not promote, the consumer awareness is low, and the popularization scope is small. Conformity behavior has the characteristics of universality, large range of communication and wide influence group, by implying or prompting consumers to jointly resist the behavior of a certain product. In the process of promoting ETC, there are behaviors mentioned before. This group that has a bad impression of the ETC system will induce others to appear conformity mentality, gradually increase the degree of conformity behavior, and more negative impact is not conducive to the expansion of popularization scope.

(3) Large heterogeneity and difficult implementation

Incompatibility between various ETC systems will hinder the normal development of ETC systems. Electronic not parking charging system in China is very widely used in provinces and cities, market share is expanding, however, the domestic highway management company through the respective channels to introduce ETC system heterogeneity, this under the trend of highway unified network charge, not easy to promote the overall development of ETC system project.

(4) Poor after-sales system and user experience

Once the competition between sellers is strong and the commodity market has declined, and the buyer is in a favorable position in trading, improving after-sales service will serve as a sharp machine to promote enterprises to better develop in the process of participating in market competition.

4. Findings and Discussions

The study was design to find out the attitude towards ETC marketing. The following are the findingg

Q1: Do you believe ETC charging system? Why?

P1: Of course, I believe it's highly used today, I can use it without doubt.

P2: It's hard to say. I heard some news that someone was charged more than he should pay. So I think it depends

P3: I think so, it's a pc system which hardly makes mistakes.

According to the participants, two of them believe the ETC charging system. One is not sure about it. That is what ETC marketing department should do. Try to make each potential customer to understand the working processing of ETC. Make them trust the system.

Q2: Where do you get to know ETC system?

P1: I got to know it by my friends. They told me about it.

P2: I heard it by news .

P3: I saw it from wechat.

According to 3 participants, all of them know ETC. But all of them are not quite familiar with it.

Q3: Are you satisfied with ETC?

P1: Sure, it's quite fast and convenient.

P2: It's good, easy to pay highway fees.

P3: Generally it's good, but sometimes someone goes into a wrong way cause us stop, sometimes someone's ETC is broken, so it may cause a lot of time to pass.

According to the participants, two participants are satisfied with the system, one is not so satisfied with the system, it indicates ETC needs technique to support it.

Q4: What factors may lead you choose ETC instead of traditional charging method?

P1: It is convenient indeed, so I choose it. It will save time to pass.

P2: They said ETC will give me a discount, so I choose it.

P3: I'm afraid that traditional methods windows become less and less, I think I have to change it. Actually I don't drive on high-speed road frequently.

According to the participants one considered about the convenience, one considered about discount, the last one considered about policy. It's a good method to let customers know ETC is boast of high convenience, discount as well as policy support. ETC marketing can be implemented from these perspectives.

Q5: What factors may lead you not give up ETC?

P1: If it's broken frequently, I will drop it since it's not very convenient. I don't have time to fix it.

P2: I think if it charges me wrong amount of money I will quit.

According to the participants, one focus on the quality of ETC, the other focus on the charging system. So it's important to improve the hardware and software of ETC. Make it reliable for customers

According to this study, it is obviously showed that people mainly want to choose ETC in Kunming, but there are still some barriers which cause the failure of usage, such as lack of understanding the system, misunderstanding the charging system. Some of them also are afraid of the quality of the ETC devices, at the same time some don't know the discount activities of ETC. These factors are supported by the related research. It showed that the majority of participant would like to try ETC, but there are some things that the government and marketing departments of ETC should do to face the challenges. If the proper measures are taken, more and more people will tend to accept ETC as their basic tools in life.

5. Suggestion & Conclusion

Marketing is to put various different marketing strategies and means to penetrate and interact, so as to achieve the best marketing effects, not only the unilateral superposition of products, prices, channels and promotion strategies [6].

5.1 Suggestion

(1) Improve the utilization rate of products and deepen trust

ETC products should follow the principles of practicality. Only products that meet the needs of the public are good products. They can be well marketed and promoted. Expand the application field of products and enhance the attractiveness of products, so that ETC system equipment is not only used in expressway charging and refueling fees, but also in daily life. For example, develop ETC card into a similar function of a traffic card, or in all aspects of clothing, food, housing and transportation. It should increase product usage and consumer trust. Updating and upgrading recharge small programs can simplify the recharge procedures by reducing virtual bank cards, avoiding consumer confusions caused by multiple virtual bank accounts, to improve the use rate of ETC products, and also reduce the sense of distrust of ETC related products.

(2) Implement a specific strategy

We can subdivide the groups according to the business nature of the car owners, analyze the specific problems according to the differentiation of the different groups, and apply the remedy to the case. Vehicles need to pass through the highway frequently, and marketers can focus on the convenience of the ETC system to develop such customers, and stimulate car owners to use through a certain amount of preferential discounts, time saving and reduced cash carrying. Customers. For example unit vehicles and inactive private cars cannot obtain profits through preferential discounts, and are not sensitive to policies issued by the state, so the feasibility of persuading such owners to use ETC system is not feasible. Then, in order to make such car owners identify and become attractive to the ETC system, they should implement differentiated marketing, and the marketers should focus on the economic benefits of the small amount to the level of value recognition and identity experience. We can develop the value-added services of the ETC system, and cooperate with banks and oil companies

to carry out new businesses, such as issuing a limited edition bank card, refueling card, etc.

(3) Improve marketing channels and strengthen invoice management and construction

In view of the improper management of electronic invoices, the state has issued guaranteed laws and regulations to ensure that consumers feel safe and reliable in the process of using electronic invoices. Advocating environmental protection has become popular in the society. The responsible enterprises should respond to the call and actively make changes. ETC Technology studies and develops the upgraded invoice applet; the vulnerability of bank bill query function improves untimely information synchronization; the general company improves the invoice management system, gradually abolish unnecessary paper invoices, in the form of electronic invoices.

(4) Improve the quality of the service personnel

Focus on appropriate guarantees and reduce the risk of consumer feeling. The Ministry of Communications set up a network center to divide customer service centers according to regions, the main responsibility is to carry out maintenance and maintenance work at the same time. Be responsible for timely handling network problems online, such as online guiding the administrators of road section and toll station to solve the ETC system problem and maintain the normal operation of the maintenance system; organize offline emergency maintenance teams to conduct rotation patrol inspection, handle emergency emergencies, follow the principle of urgent first and slow first, establish the overall concept to ensure the safety and rapid passage of expressway [8]. In addition, the traditional service mode should be better improved and constantly innovated, customers' various needs should be met with high quality, and all kinds of difficult problems should be answered and solved in time. To be specific, ETC official website update upgrade function, national unified customer hotline and other ways to improve service quality.

(5) Adjust the mode of market promotion

Literally, the term "promotion" means "widespread publicity"; "marketing" refers to "marketing communication". When industry mention "promotion", it refers more to the process of "promoting the product in the marketing". In view of the problems of poor promotion [9], low quality of staff and less promotion activities, the following strategies can be adopted to solve the problems in the current promotion, so as to achieve the best promotion effect, thus enhancing the influence of ETC in marketing. Through newspapers, magazines, TV and radio and other traditional ways have not been satisfied with modern publicity and promotion. Strengthen the market promotion of ETC products on a large scale, adjust the dissemination of ETC advertising information, and mainly adopt three means: media promotion, personnel promotion and corresponding channel promotion.

(6) Improve the external environment

From the external environment, government should promote effective policy making, coordinate relations, support budgets and create a good political environment, legal and regulatory level, clarify the rights and obligations between banks and consumers, standardize the relationship and protect consumer rights and interests, organizational level, coordinate all organizations to manage, supervise and create a good social atmosphere.

5.2 Conclusion

Although there has been some success in the marketing ETC system in Kunming, we can still see the phenomenon that many car owners queue up in long lines in the manual charging channel for human payment. From the market point of view, the market space of the development can also be expanded. The popularity of the ETC system has been further expanded through marketing means such as promotion and various promotional activities. Electronic non-parking charging system has become one of the integral modules of the intelligent transportation system. ETC not only reduce travel time and energy consumption, but also save infrastructure and operating costs; therefore, its advanced payment system is highly praised throughout the world [10]. In general, in the future, ETC system has large development space and clear future direction. It is more important to strengthen innovation ideas and strategies and develop the optimal services.

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