

Research on the use of social media marketing by small and micro Electronic Commerce enterprises in China

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Abstract

With the development of the Internet, mobile Internet, big data, cloud computing, artificial intelligence and other new generation technologies, information dissemination has entered the era of social media. The development of various social media platforms has changed the mode of e-commerce marketing, and new marketing methods such as “live streaming marketing”, “short video marketing”, and “community marketing” have emerged. However, with the popularization of online shopping and online store opening techniques, more and more online stores are registered on e-commerce trading platforms such as Taobao, JD.com, and Pinduoduo, and the number of products is increasing exponentially. This has led to a decreasing probability of online store products being seen by customers. Therefore, it is very important to carry out social media marketing. There is currently no research conducted on the data of social media marketing conducted by small microelectronic commerce enterprises operating online stores on e-commerce platforms. Therefore, this study will investigate the social media marketing data of these small and micro Electronic Commerce enterprises, including marketing costs (investment costs), teams, marketing methods, marketing effects (revenue obtained), etc. By analyzing these data, the social media marketing status of small and micro Electronic Commerce enterprises will be analyzed, and based on the knowledge learned, some suggestions and strategies will be proposed.

Keywords: Social media marketing, Electronic Commerce, Internet marketing



1 INTRODUCTION

1.1 Research Background

From April 20, 1994, China had full access to the Internet, and by 2015, China had upgraded “Internet plus” to a national strategy. The Internet has changed people’s lifestyle and promoted the development of e-commerce. According to the China Internet Development Report (2021) released by the Internet Society of China at the 20th China Internet Conference on July 13, 2021, by the end of 2020, the number of Internet users in China has reached 989 million, and the Internet penetration rate has reached 70.4% (He, G, 2021). According to the “China E-commerce Report (2020)” released by the Chinese Ministry of Commerce on September 15, 2021, the transaction volume of China’s e-commerce reached 37.21 trillion yuan in 2020, with an annual growth rate of 4.5%. The transaction volume of the e-commerce service industry reached 5.45 trillion yuan, with an annual growth rate of 21.9%. The number of e-commerce practitioners reached 60.153 million people, with an annual growth rate of 17% (Department of e-commerce and information technology, registry of commerce, 2021). With the rapid development of e-commerce, more and more online stores are emerging. According to data released by the Taobao e-commerce platform, there are over 10 million Taobao stores.

The rapid development of e-commerce and the popularization of technology have made it easier and easier to open stores on the e-commerce platform, and more businesses have poured into the platform, providing consumers and customers with more choices. However, the opportunities for enterprises to display their goods are less and less, and the survival difficulty coefficient of e-commerce businesses has increased, so e-commerce enterprises have to choose to carry out Internet marketing. Today, with the rapid development of the Internet and new media, how to improve the flow of e-commerce platforms, increase the exposure rate of merchants’ products, and improve sales performance through Internet marketing is an important issue facing e-commerce platforms and merchants today. With the development of mobile Internet, cloud computing, big data and other new technologies, the way of network communication has entered the era of social media, which has changed the content form, speed, mode and chain of network information. In China, there are many social media platforms that have significant differences in content form and dissemination methods. For example, on the Tiktok platform and Kwai platform, users can share their lives through short videos on the platform, and others can see these short videos through the recommendation of the platform, even without adding friends. Some platforms only provide information exchange and sharing among friends, such as WeChat platform. Only when friends are added to each other can they chat and see each other’s social circles.

The development of social media has changed people’s lifestyles, and more and more people are accessing information through social media. In China, according to the Data Report of China’s Short Video Industry in 2022 on Insight and Information website, as of March 2022, there are 925 million internet users active on short video social media platforms in China. The emergence of social media has changed the way online marketing is conducted, as these platforms gather a large user base. Compared to the traditional online marketing methods mainly based on email and websites, using social media for online marketing has advantages such as saving marketing costs, increasing display opportunities, and reducing technical difficulty. This has brought new development opportunities to small and micro enterprises. The methods of live streaming sales and short video sales allow users to watch and buy at the same time. Users can also communicate and share with each other, which is highly favored by users, and their consumption habits are gradually changing. According to the official news of social media, as of December 2021, more than 1.8 million businesses have settled in Tiktok platform and opened Tiktok stores to sell goods (Daily economic news. 2022), and the turnover of Kwai e-commerce in 2021 will exceed 680 billion yuan (E-commerce newspaper, 2022). These social new media platforms leverage the advantages of social matrices to quickly gather a group of highly active user groups, supporting enterprise product marketing while meeting user social functions, and are increasingly welcomed by small and microElectronic Commerce enterprises.

1.2 Research questions

Today, with the rapid development of the Internet, the number of enterprises on e-commerce trading platforms is increasing, and the opportunities for enterprise goods to be displayed are becoming less and less, so the cost of enterprises to obtain traffic on e-commerce platforms will increase significantly, so carrying out multifaceted Internet marketing is the development direction of most enterprises at present. For small and micro Electronic Commerce enterprises, they hope to share their products or services on social media through the current trend of social media marketing, gain traffic, and achieve the goal of transactions. However, due to the limited strength of small and micro Electronic Commerce enterprises, the main factors that restrict their social media marketing include cost, team, marketing methods, and marketing effectiveness.

The first factor is cost: E-commerce platforms generally provide advertising services within the platform, and enterprises obtain traffic by purchasing advertising services. However, as the number of enterprises entering the e-commerce platform increases, the advertising cost of the e-commerce platform will become higher and higher. Due to the continuous growth of advertising service fees on e-commerce platforms, coupled with the current booming development of social media, more and more small and micro electronic commerce enterprises are adopting social media for marketing. The cost of social media marketing is one of the contents of this study.

The second factor is the team: engaging in social media marketing requires a certain team to complete, and the marketing strategies and techniques of different teams will have different effects. For small and micro Electronic Commerce enterprises, the lack of a team may result in the failure to carry out social media marketing, or the effectiveness of social media marketing may not be very good. Therefore, it is very important for small and micro Electronic Commerce enterprises to build social media marketing teams, increase opportunities for product display, and obtain traffic from social media.

The third factor is marketing methods: social media marketing methods are also diverse. According to the different platforms used, they can be divided into QQ marketing, microblog marketing, Kwai marketing, Tiktok marketing. According to the form of marketing content, they can also be divided into live broadcast marketing, short video marketing, graphic marketing, question and answer marketing, etc. Different marketing methods have different marketing effects, so it is also important to understand the marketing methods of small and micro Electronic Commerce enterprises.

The fourth factor is marketing effectiveness: Small and micro Electronic Commerce enterprises adopt social media marketing with the aim of increasing the sales amount of their products or services and obtaining certain benefits.

Based on the above content, a research question has been formulated: What are the data on social media marketing costs, teams, marketing effectiveness, and marketing methods for small and micro Electronic Commerce enterprises? What kind of connection are there between each other?

1.3 Research Status

1.3.1 Current research status in China

The era of social media has emerged with the development of new technologies. Currently, large e-commerce enterprises have advantages such as mature teams and technologies, sufficient funds, and brand influence. Social media marketing has achieved good results, but these enterprises will not disclose their social media marketing data and specific plans because they involve commercial secrets. There is very little literature on corporate social media marketing data and specific plans. Secondly, due to their small size, small and micro Electronic Commerce enterprises have rarely achieved success through social media marketing, which has not attracted the attention of more researchers. Therefore, there is almost no research on social media marketing for small and micro Electronic Commerce enterprises.



The professional markets for e-commerce marketing services in China mainly include Taobao Alliance and JD Alliance. Among them, Taobao Alliance, under Alibaba Mama, is the largest e-commerce marketing alliance in China and also a professional e-commerce advertising service trading market. As the most popular new media platform in China at present, Tiktok platform supports short video marketing and live broadcast marketing, and has a large number of practitioners. However, there are very few relevant literature about social media marketing data through the query of CNKI, Wanfang Data and other platforms. Most of them are theoretical and strategic research, not to mention research on cost, team, marketing methods, and effects.

1.3.2 International research status

The global e-commerce marketing service professional markets mainly include Amazon Alliance and eBay Alliance. As the largest marketing service professional market in the world of e-commerce, Amazon Alliance's marketers have widely used various marketing methods, including websites, emails, social platforms (Twitter, Facebook, Google+, etc.), bidding advertisements, etc. The overall trend is that the marketing influence and transaction volume of social media platforms are rapidly increasing. As a network place for people's daily life and entertainment, social media platforms are beneficial for e-commerce enterprises to carry out marketing activities. As an international e-commerce marketing service organization, most of them are professional Internet marketing companies, especially in social networking platforms. Most of them are professional economic companies to expand their business.

Social media marketing cases of some large international companies will be studied by numerous organizations, including scholars, competitors, survey companies, etc. However, the main reason for the success of social media marketing activities in large companies is that they have access to a large amount of resources. These large enterprises possess resources that small and micro enterprises do not possess, so it is necessary to analyze the problems that small and micro electronic commerce enterprises face in carrying out social media marketing through data analysis. There is relatively little research on social media marketing data for small and micro Electronic Commerce enterprises internationally. In addition, the recent hot social media marketing has changed the pattern of online marketing. Therefore, it is necessary to conduct research on social media marketing data for small and micro Electronic Commerce enterprises.

1.4 Research Objectives

The ultimate goal of this study is to obtain data on cost, team, marketing methods, marketing effectiveness, and other aspects of social media marketing carried out by small microElectronic Commerce enterprises through a questionnaire survey. The survey data will be organized and analyzed to understand the situation and existing problems of social media marketing carried out by small microElectronic Commerce enterprises, and provide certain suggestions and strategies based on the problems. Based on the research questions, research objectives and content have been formulated, as follows:

Goal 1: Obtain data on the investment costs of social media marketing by small and micro Electronic Commerce enterprises. In order to achieve this goal, the target audience of this sampling survey is small and micro Electronic Commerce operators. The questionnaire is mainly obtained through two questions: Q1 is "How much does your company spend on marketing in a quarter?" Q2 is "How much does your company spend on social media marketing in a quarter?" These two data can be used to obtain their quarterly marketing expense data and the proportion of social media marketing expenses.

Goal 2: Obtain data on social media marketing teams of small and micro Electronic Commerce enterprises. In order to achieve this goal, we mainly obtained data from two questions in the questionnaire. Q3 is "What is the number of people in your company's marketing team?" and Q4 is "What is the number of people in your company's social media marketing team?" These two data can be used to obtain their marketing team data and the proportion of social media team members.

Goal 3: Obtain data on social media marketing methods carried out by small and micro Electronic Commerce enterprises. In order to achieve this goal, we mainly obtained information through three questions in the questionnaire. Q5 is “How many social media marketing platforms is your company currently using?” Q6 is “What social media marketing platforms is your company currently using?” Q7 is “What are the current forms of social media marketing content in your company?” Through these three data points, data on their marketing platforms and methods can be obtained.

Goal 4: Obtain data on the effectiveness of social media marketing for small and micro Electronic Commerce enterprises. In order to achieve this goal, it is mainly obtained through four questions in the questionnaire. Q8 is “What is the sales revenue of your company through marketing in a quarter?” Q9 is “What is the sales revenue of your company through social media marketing in a quarter?” Q10 is “What is the order volume generated by your company through social media marketing in a quarter?” Q11 is “Do you think social media marketing has advantages compared to other forms of marketing?” Based on these four data and the social media marketing data obtained earlier, the effectiveness of social media marketing can be obtained.

1.5 Research significance

Today, with the rapid development of the Internet, various e-commerce platforms compete and encourage businesses on e-commerce platforms to rack their brains in order to sell products. Social media marketing is increasingly necessary. However, large enterprises can easily succeed in conducting social media marketing due to their abundant resources. For small microElectronic Commerce enterprises, conducting social media marketing is not only to adapt to the current trend of development, but also an opportunity for their own development. Through sampling surveys, data on cost, team, effectiveness, and methods of social media marketing for small and micro Electronic Commerce enterprises can be obtained. Based on data analysis, their existing problems can be identified. Based on the knowledge learned, certain strategies and suggestions can be proposed, which has certain significance.

Theoretical significance: Through the analysis of existing academic platforms such as CNKI and Wanfang, such as journals, literature, and theses, it was found that there is a lot of research and understanding on online marketing. However, there is relatively little research on social media marketing for small and micro Electronic Commerce enterprises. This study obtains data on social media marketing carried out by small and micro Electronic Commerce enterprises through surveys, which can enrich relevant literature, Provide reference for small and micro Electronic Commerce enterprises, relevant professional teachers, scholars, individuals, etc.

Realistic significance: With the development of the Internet, e-commerce has become the mainstream. A large number of enterprises have entered the e-commerce platform to open stores to sell products and services, leading to increasingly fierce competition. Small and micro enterprises have limited resources, and their products will be seen by customers on the e-commerce platform with smaller opportunities, making product sales more difficult. Social media platform marketing is a new opportunity and adjustment. By conducting surveys to obtain relevant data on social media marketing for small and micro Electronic Commerce enterprises, analyzing the data can ultimately guide practice. Researchers, as management personnel of Luzhou Wenjie Technology Co., Ltd., a small microelectronics business enterprise, can develop their own social media marketing strategies based on this data and provide decision-making references for other small microelectronics business enterprises.

1.6 Definition of Terms

E-commerce enterprises: The e-commerce enterprises studied in this study refer to enterprises that open stores to sell products on e-commerce platforms such as Taobao, JD.com, and Amazon. These enterprises mainly sell through online channels, and compared with other enterprises, they have almost no offline sales stores. These enterprises have their own online brands, contract factories, etc. For example, the Chinese



online makeup brand “Huaxizi” has its online sales store on the Tmall e-commerce platform under Taobao, but the company does not have any offline stores. The company conducts social media marketing through new media platforms such as WeChat, Weibo, Tiktok, and Kwai. Customers can purchase products from these social media platforms after obtaining product information.

Small microelectronics business enterprise: refers to an enterprise whose main sales method is to open stores on e-commerce platforms, with an annual sales revenue of less than 5 million yuan and a staff of less than 50 people. Enterprises with annual sales below 2 million yuan and fewer than 30 employees are micro enterprises, and most of their products are produced through contract factories. The classification criteria mainly refer to the Notice on Issuing the Classification Standards for Small and Medium sized Enterprises (MIIT Joint Enterprise [2011] No. 300) issued by the Ministry of Industry and Information Technology of China in 2011, as well as the current economic development situation.

2 LITERATURE REVIEW

2.1 Social media marketing related theories

2.1.1 Concept of Internet marketing

At present, many researchers call Internet marketing as Internet marketing. Due to the rapid development of the Internet industry, the ways and methods of Internet marketing are constantly changing and developing. Researchers in different periods have different views, so that no unified definition has been formed so far. Based on the query of Internet marketing and online marketing related literature, this paper sorted out the related theories of Internet marketing and online marketing.

Philip Kotler pointed out that online marketing should be classified as a type of direct marketing, where people maintain close contact with computers through online marketing and can enjoy fast services through computer platforms; Judy Strauss and others believe that online marketing will be based on the Internet platform to show customers the company’s products and services, effectively consolidate the relationship between them through interaction and communication with customers, and create more benefits for enterprises while meeting consumer needs (Zhu, X, 2018). Chinese scholars Qian Xuchao and Wang Qun have pointed out that the essence of online marketing is to migrate the marketing platform to a virtual network, with the aim of meeting the different needs of users, while creating more value and promoting the smooth realization of enterprise market goals (Zhu, X, 2018). Feng Yingjian, a Chinese scholar, defined online marketing in the “Fundamentals and Practice of Online Marketing (5th Edition)” as: online marketing is an integral part of an enterprise’s overall marketing strategy, and is a variety of activities that are carried out to achieve the overall experience goals of enterprises and create an online business environment with the Internet as the basic means (Feng, J.2016).

According to the above query about the definition of online marketing by important researchers and the knowledge learned by the author, the author of this study agrees that he once proposed the definition of Internet marketing in 2020. Based on the development of communication technology and Internet technology, Internet marketing is a marketing method that takes the Internet as the channel of information dissemination and provides various advertising information to Internet users through various Internet information dissemination and interaction platforms to achieve the marketing purpose of marketing products, services, brands, etc. Internet marketing can be subdivided into a variety of marketing methods and means according to the different Internet information communication interactive platforms used, including WeChat marketing, Tiktok marketing, live broadcast marketing, microblog marketing, QQ marketing, website marketing, etc.

2.1.2 Theory related to new media marketing

Regarding the definition of new media, this researcher believes that it is relative and has emerged with the development of communication technology and network technology. Compared to traditional media such as newspapers and television, new media is more diverse and efficient in terms of dissemination methods

and content presentation forms. Through consulting relevant materials, it can be seen that there is currently no unified definition of new media, and different scholars have different opinions. Today's mainstream new media is mainly based on the development of the Internet and information technology, which gradually reflects the transition trend from the traditional Internet to the mobile Internet (Jiang, J, 2022). The emergence of new media such as Tiktok, WeChat, and Weibo has changed the way of information dissemination. More and more people share product information to users through new media, so that users can understand their products and have purchase behavior.

Regarding the definition of new media marketing, as it is a new phenomenon, there are many viewpoints found through research. The viewpoint of Chinese scholar Wang Qing on the concept of new media marketing in his 2017 paper is that currently popular new media marketing platforms include social media platforms, electronic journals, websites, or online videos (Wang, Q, 2017). Li Kan, a Chinese scholar, summarized the concept of new media marketing in more detail. In his paper, he clearly pointed out that new media marketing means that in the Internet era, enterprises use modern information technology and electronic technology to collect and sort out the relevant information on the Internet, and spread the product information and value image of enterprises through the marketing platform to achieve the purpose of improving the economic efficiency of enterprises (Li, K, 2019). This researcher believes that new media marketing is a way of Internet marketing. It is a marketing way to spread information to potential customers through new media. Information includes enterprise products, services, views, images, etc., with the purpose of realizing the enterprise's own interests.

2.1.3 Social media marketing

Social media marketing is a way of Internet marketing as well as a way of new media marketing. Relying on social media platforms such as WeChat, Tiktok, Kwai, etc., create various kinds of content to share goods with users, so as to improve traffic and achieve the transaction of goods. Secondly, social media platforms such as Tiktok and Kwai have also opened e-commerce functions to support online transactions. Because these new social media platforms themselves provide short videos, live broadcasts, chat and other social information sharing methods, most businesses and promoters use high-quality content to achieve commodity marketing. Social media platforms can support graphic and textual information, video information, live streaming information, etc. in the form of content creation. Therefore, social media marketing can be divided into short video marketing, live streaming marketing, etc. according to the different creative content. Short video marketing refers to the marketing path in which enterprises use short videos as a communication medium to convey product information to existing and potential consumers, influencing the audience's cognition, attitude, and behavior, and ultimately achieving consumer conversion (Zhou, H, 2021). However, in China, social media marketing can also be classified into Tiktok marketing, Kwai marketing, etc. according to different platforms.

Due to the emergence of social media marketing in the past two years with the development of social media platforms, there is not yet much professional literature describing the definition of social media marketing. In a paper published in 2022, Chinese scholar Zhang Dingyong mentioned that the essence of enterprise social media marketing is to use social media platforms on the basis of marketing to better improve the timely and effective information transmission, meet the actual needs of customers, and ultimately achieve long-term and effective development of enterprises (Zhang, D, 2014). Scholars have also mentioned that social media can achieve user awareness and understanding of the information they need through various communication media such as text, images, and sound. Its basic feature is its wide dissemination, and the content and form carried by social media have become increasingly diverse from the previous singularity. Enterprises can use this to carry out marketing and find users (Li, Y, 2022).



2.2 Comparative analysis of social media marketing literature

During the process of reviewing materials, we searched for literature related to social media marketing through the literature search platform “CNKI”. We entered the keywords “social media marketing” and “new media marketing” for retrieval, and found a total of 93 records, including 68 academic papers and 25 degree papers (master’s and doctoral degrees). By reading the content of these literature, statistics were conducted from five aspects: whether social media marketing is defined, whether it involves enterprise marketing data, whether there is enterprise marketing data analysis, whether it involves small and micro enterprises, and whether it involves small and micro Electronic Commerce enterprises, as shown in Table 1.

From Table 1, we can see that there is relatively little literature on social media marketing concepts and enterprise marketing data analysis, and there is no literature on social media marketing for small and micro e-commerce enterprises. This is because social media marketing itself is a new thing, and few researchers have focused on the large number of small and micro e-commerce enterprises. However, with the increase of small and medium-sized e-commerce enterprises on e-commerce platforms, competition is becoming increasingly fierce, and social media marketing has become very important, so this is a meaningful research.

Table 1 Statistical Table of Social Media Marketing Literature Data

Project	Yes	No	Total
Definition of Social Media Marketing	21	51	72
Involving enterprise marketing data	14	58	72
Analysis of Enterprise Marketing Data	13	59	72
Involving small and micro enterprises	6	66	72
Involving small and microElectronic Commerce enterprises	0	72	72

3 DATA COLLECTION AND ANALYSIS

3.1 Survey Object

This study used a sampling questionnaire survey method to obtain data, and the sample survey targets small and micro Electronic Commerce operators in various e-commerce platforms. At present, the mainstream e-commerce platforms in China include Taobao, Jingdong, Pinduoduo, Tiktok, Kwai and other platforms. In order to improve the accuracy of data, the respondents of this survey will select the businesses operating in these e-commerce platforms and randomly distribute questionnaires to some businesses. Due to the different product categories operated by e-commerce enterprises, in this survey process, based on the background data of the survey questionnaire, we will invite small and micro electronic commerce enterprise operators from multiple product categories as much as possible to participate.

3.2 Data Collection

This questionnaire production will use a professional online questionnaire production and survey tool, named Wenjuan.com. The official online address of this tool is (<https://www.wenjuan.com/?source=spss-pro>), is a mainstream online questionnaire tool in China, which can be logged in and created using WeChat. This questionnaire will be sent to participants in the form of an online questionnaire. In order to provide more accurate information to participants, it will be completed through invitation from the custom-

er group of Luzhou Wenjie Technology Co., Ltd.

This questionnaire survey collected 95 valid data for the first time, and 5 valid data for the second distribution. A total of 100 valid data were collected in both sessions. Among these participants, there were 48 males and 52 females, accounting for 48% and 52% respectively. The minimum age of the respondents is 21 years old, and the maximum age is 58 years old. 28 respondents have a high school education or below, 22 have a college degree, 27 have a bachelor's degree, and 23 have a graduate degree. This survey questionnaire involves 11 questions and forms 11 variables. The quantitative variables are age, annual income of the company, number of companies, number of people using social media, annual social media marketing expenses, social media marketing effectiveness rating, and social media development expectation rating. The categorical variables are gender, education level, e-commerce platform, and the most commonly used social media platform.

3.3 Data Analysis

SPSS software provides various data analysis methods, including description, correlation, variance, frequency, normality validation, and other analysis methods. The three steps of SPSS data analysis are divided into descriptive analysis, inferential analysis, and exploratory analysis (Luo, W&Zhang, Q, 2013). In this study, multiple analysis methods were mainly selected, including descriptive analysis, Pearson correlation analysis, T-TEST analysis, and so on. Descriptive analysis method originates from statistics and is a method of data statistical analysis. It mainly uses SPSS software to analyze the collected data and obtain various quantitative characteristics that reflect objective phenomena. It includes analysis of data concentration trend, analysis of data dispersion, analysis of data frequency distribution, etc. Descriptive analysis is the basis for further data analysis (Hou, H, 2014). This study will collect data on cost, team, approach, effectiveness, and other aspects of social media marketing in small and micro Electronic Commerce enterprises. Descriptive analysis methods can be used to obtain the median, IQR, kurtosis, skewness, mean, and other information of these data, which can determine the overall situation of the collected data. Normal validity of each variable was tested, and comprehensive judgment was made through histograms and PP graphs. The data of social media marketing effectiveness score and social media development expectation score do not follow a normal distribution. Exploratory analysis of the relationship between data will be conducted through analysis methods such as Pearson correlation, T-TEST, and ANOVA.

3.3.1 Descriptive statistical analysis

Select four variables: annual revenue, number of employees, number of social media users, and annual marketing expenses on social media platforms. Next, use descriptive analysis methods. Finally, select two values: basic and advanced indicators. The maximum values of the three variables, namely annual revenue, number of employees, and number of social media users, did not exceed the average by 3 standard deviations. The data fluctuation was small, and the average was used for overall description. However, the maximum value of annual social media platform marketing expenses exceeded the average by 3 standard deviations, indicating significant data fluctuation. Therefore, the median was used for overall description. The average annual income of enterprises is 2.8568 million yuan, with a median of 3.095 million yuan, indicating that most of the surveyed operators are small enterprises (with an annual income of 2-5 million yuan). The maximum number of employees in enterprises is 38, which is less than 50, meeting the requirements of small and micro enterprises. The average value is 15.1, and the median is 13.5. This indicates that most enterprises have around 15 employees, which is determined by the characteristics of e-commerce enterprises. The minimum value of using social media is 0, and the maximum value is 5, indicating that some companies do not use social media platforms for marketing. The average value is 2.54, and the median is 2.0, indicating that most companies choose two or more social media platforms for marketing. The median annual marketing expenses for social media platforms are 300000 yuan, with an average of 278500 yuan, indicating that most companies spend around 300000 yuan per year on social media platforms. The specific data is shown in Table 2.



Table 2: Descriptive statistical indicator data

Name	AGV±S tandard Deviation	varian ce	Q1	M	Q3	Sem	AGV95 %CI(LL)	AGV95 %CI(UL)	Iqr	kurto sis	skew ness	CV)
Q6-Enterprise annual income	285.680 ±108.445	11760.361	189.750	309.500	370.750	10.845	264.425	306.935	181.000	-0.965	-0.435	37.960%
Q7-Number of enterprises	15.100± 9.556	91.323	36.000	13.500	22.000	0.956	13.227	16.973	16.000	-0.744	0.547	63.287%
Q8-Number of social media used	2.540±1 .283	1.645	2.000	2.000	3.000	0.128	2.289	2.791	1.000	-0.405	0.247	50.493%
Q10-Annual Social Media Marketing Spend	27.850± 17.003	289.098	13.250	30.000	36.750	1.700	24.517	31.183	23.5000	0.409	0.596	61.052%

Selecting the variable of social media usage for frequency analysis, a frequency statistics table and pie chart of social media usage were obtained, as shown in Table 3. Among them, 96 business owners use social media for marketing, accounting for 96%. Only 4 business owners have not used social media marketing, indicating that the majority of business owners in small and microelectronic enterprises use social media platforms to market their products or services. Secondly, 75% of operators use two or more social media platforms for marketing, indicating that most small and micro Electronic Commerce operators use multiple social media platforms to market their products or services. Finally, there are 30 operators using two social media platforms for marketing, and 29 operators using three social media platforms, accounting for a total of 59%. This indicates that most operators use 2-3 social media platforms to market their products or services.

Table 3: Number of social media usage

Term	Frequency	Percentage	Cumulative Percentage
0	4	4.00%	4.00%
1	17	17.00%	21.00%
2	30	30.00%	51.00%
3	29	29.00%	80.00%
4	10	10.00%	90.00%
5	10	10.00%	100.00%
Total	100	100.0%	

Using the frequency analysis method in descriptive analysis, the most commonly used social media platforms were selected. The categorical variable was chosen as the most commonly used social media platform, and the analysis algorithm was chosen for frequency analysis, resulting in Table 4. Among them, there are 38 operators who use Tiktok as the most important social media platform, accounting for 38%, and 30 operators who use Kwai as the most important social media platform, accounting for 30%. These two platforms are the main platforms for social media marketing of small and micro electronics business

enterprises. The reason is that these two platforms, as the hottest short video social media platforms in China, have a large number of user groups.

Table 4: Frequency data of social media platforms

Name	option	Frequency	Percentage(%)	Cumulative Percentage(%)
Q9- Most commonly used social media platforms	Tiktok	38	38	38
	Kwai	30	30	68
	Xiaohongshu	12	12	80
	WeChat	11	11	91
	Others	5	5	96
	No	4	4	100
Total		100	100.000	100.000

Using the cross analysis method in descriptive analysis to examine the relationship between e-commerce platforms and the most commonly used social media platforms, first select the most commonly used social media platforms as grouping variables, then select e-commerce platforms as common variables, and finally choose cross analysis as the analysis method, resulting in Table 5. The operators of Taobao, Pinduoduo and other e-commerce platforms regard Tiktok as the main social media platform, accounting for 44.4%, 36% and 80% respectively, which indicates that these operators prefer Tiktok as the main social media marketing platform. The main social media platform used by operators of the JD e-commerce platform is Kwai, accounting for 37.5%. This is because the cooperation between the JD e-commerce platform and the Kwai social media platform has been reached, and users of the Kwai platform can directly purchase products of the JD platform through Kwai stores.

Table 5: E-commerce and social media platform data

Term	Name	Q9- Most commonly used social media platforms						Total
		Tiktok	Xiaohongshu	Kwai	Others	No	WeChat	
Q5- E-commerce Platform	JD	6(25.000%)	4(16.700%)	9(37.500%)	2(8.300%)	2(8.300%)	1(4.200%)	24
	Others	4(80.000%)	0(0.000%)	1(20.000%)	0(0.000%)	0(0.000%)	0(0.000%)	5
	Pinduoduo	9(36.000%)	2(8.000%)	6(24.000%)	2(8.000%)	1(4.000%)	5(20.000%)	25
	TaoBao	16(44.400%)	2(5.600%)	13(36.100%)	0(0.000%)	1(2.800%)	4(11.100%)	36
	Suning	3(30.000%)	4(40.000%)	1(10.000%)	1(10.000%)	0(0.000%)	1(10.000%)	10
Total		38	12	30	5	4	11	100

3.3.2 Pearson correlation analysis

In order to obtain the factors that affect the investment in social media platform marketing expenses of small and micro Electronic Commerce enterprises, Pearson correlation analysis was conducted between four variables: age, annual income of the enterprise, number of enterprises, and number of users of social media and social media marketing expenses. The specific data is shown in Table 6. The correlation coefficient between age and annual social media platform marketing expenses is -0.206, and shows a significance level of 0.05, indicating a significant negative correlation between age and annual social media platform investment expenses. This indicates that younger operators are more willing to invest in marketing expenses on social media platforms. The correlation coefficients between annual revenue, number of employees,

number of social media users, and marketing expenses on social media platforms are all greater than 0. The correlation coefficient between annual revenue and marketing expenses on social media platforms is 0.476, which is greater than 0.4 and shows a significant positive correlation at the 0.01 level, indicating a significant positive correlation between the two, The higher the annual income of the enterprise, the more willing the operator is to invest marketing expenses on social media platforms.

Table 6 Pearson Correlation Analysis Data

		Age	Enterprise annual income	Number of enterprises	Number of social media used
Annual Social Media Marketing Spend	related coefficient	-0.206*	0.476**	0.339*	0.206*
	<i>p</i>	0.040	0.000	0.001	0.040
* $p < 0.05$ ** $p < 0.01$					

3.3.3T-TEST

In order to explore the relationship between different types of social media platforms and the annual marketing expenses of social media platforms, first of all, data processing is carried out on the social media platforms most commonly used. Tiktok and Kwai are classified as short video social media platforms, and Xiaohongshu, WeChat and other platforms are classified as information social media platforms. A new classification variable is the most commonly used social media platform (V1), Secondly, select a quantitative variable annual social media platform marketing cost, and finally select T-TEST. Since four operators did not use the social media platform for marketing, they did not have the data of the social media platform that they mainly used. These data were replaced by null values. The null values were removed during analysis, and the actual sample number was 96. The analysis results are shown in Table 7, where the average annual marketing expense of short video social platforms is 340300 yuan with a standard deviation of 15.34, and the average annual marketing expense of information social media platforms is 168200 yuan with a standard deviation of 7.45. It can be seen that the average annual marketing cost of information social media platforms (16.82) is significantly lower than the average annual marketing cost of short video social media platforms (34.03), showing a significance of 0.01 level ($t = -7.375$, $p = 0.000$), indicating that the category of social media platforms most used and the marketing cost of social media platforms all show a significant difference. Based on the analysis of the actual situation, short video social media platforms such as Tiktok and Kwai are currently developing rapidly, with a large number of users. Operators of small and micro E-commerce enterprises are more willing to spend more money on these platforms to market products or services.

Table 7 Data sheet of t test analysis results

Source of difference	SS	df	MS	F	p
Intercept	2705.562	1	2705.562	14.546	0.000**
Q6 E-commerce platform	407.704	4	101.926	0.548	0.701
Q10 - Social Media Platform Mainly Used	8335.292	5	1667.058	8.963	0.000**
Q12 Social media marketing effect scoring	316.064	1	316.064	1.699	0.196
Residual	16553.855	89	185.998		
R2: 0.372					
* $p < 0.05$ ** $p < 0.01$					

In addition, the T-TEST analysis of gender and annual social media platform marketing expenses, education background (including senior high school and junior college, undergraduate and graduate students) and annual social media platform marketing expenses did not show significant differences, indicating that gender and education background are not the main reasons that affect operators' investment in annual social media platform marketing expenses.

3.3.4 ANOVA

In order to find out whether e-commerce platforms and the social media platforms most commonly used have an impact on the annual social media platform marketing fees, we use the two factor ANOVA to include the social media marketing effect score as a covariate in the analysis model when using this method. First, e-commerce platform and social media platform are two categorical variables, and then the annual social media marketing cost is selected as the quantitative data for the main analysis. Second, the social media marketing effect score is selected as the auxiliary analysis variable. Finally, two factor ANOVA analysis is selected as the method. The analysis results are as shown in Table 8. The e-commerce platform has no significant effect on the annual social media platform marketing costs ($F=0.548$, $p=0.701>0.05$), and there is no difference relationship; The social media marketing effect score has no significant effect on the annual social media platform marketing cost ($F=1.699$, $p=0.196>0.05$), and there is no difference relationship; The social media platform that is mainly used has a significant effect on the annual social media platform marketing cost ($F=8.963$, $p=0.000<0.05$), indicating that there is a main effect and there is a difference relationship. It shows that the operators of small and medium-sized e-commerce enterprises will not change their annual social media platform marketing expenses due to different e-commerce platforms, nor will they be affected by the social media marketing effect. It is the social media platform they mainly use that affects the operators of small and medium-sized e-commerce enterprises to change their annual social media marketing expenses.

Table 8 Data Table of Two factor ANOVA Results

Source of difference	SS	df	MS	F	p
Intercept	2705.562	1	2705.562	14.546	0.000**
Q6 E-commerce platform	407.704	4	101.926	0.548	0.701
Q10 - Social Media Platform Mainly Used	8335.292	5	1667.058	8.963	0.000**
Q12 Social media marketing effect scoring	316.064	1	316.064	1.699	0.196
Residual	16553.855	89	185.998		

$R^2: 0.372$
 * $p<0.05$ ** $p<0.01$

4 SUMMARY AND DISCUSSION

4.1 Summary

In the context of the social media era, the operators of small and medium-sized e-commerce enterprises are willing to use the social media platform to market products or services when facing the situation of more and more e-commerce platform stores. Due to the development of mobile Internet, cloud computing, big data and other new technologies, major network companies in China have developed different social media platforms, including short video social media platforms represented by Tiktok and Kwai, and information exchange social media platforms represented by WeChat, Xiaohongshu and Toutiao today. According to the results of data analysis, the social media platform mainly used has a different relationship with the annual social media marketing costs, which will affect the operators' investment in social media platforms. Other factors such as gender, education, e-commerce platform and social media marketing effect have no difference with the annual social media platform marketing cost, so it will not affect the operator's



investment in the social media platform. The operators of small and medium-sized e-commerce enterprises prefer the current hot short video social media platform in the selection of social media platforms, and the operators who choose Tiktok platform for marketing are the most.

4.2 Discussion

This data analysis found the factors that affect the marketing expenses of small and medium-sized e-commerce business operators on the social media platform, which is the most important social media platform they use. Why do different social media platforms affect their input costs, rather than marketing effects? For this problem, we may need to obtain more data to analyze the cause. However, a bold assumption can be made here. It may be that the investment philosophy and time of the operators of these small and medium-sized e-commerce enterprises are different. If these operators are just starting to carry out social media marketing, they may consider more about how to open up the situation and get more displays, without considering the effect.

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