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Influence of E-commerce Innovation on Consumer Behavior in China Case: Alibaba Group

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ABSTRACT

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With the continuous upgrading and transformation of science and technology, technological innovation, led by communication technology, directly or indirectly affects the change of Chinese consumer behavior. At present, China's consumption is dominated by e-commerce under big data applications. Therefore, this paper mainly studies how e-commerce platform companies influence the consumption behavior of Chinese consumers through the technology represented by big data analysis. The first chapter elaborates the core points of view and the main research issues. At the same time, the structure of the whole graduation thesis is displayed and analyzed, so that the logic of the whole thesis is clearer.

The theoretical part of the graduation thesis is divided into two parts: e-commerce and consumer behavior. Both are the biggest consumer point in China's consumer market. In addition to its basic introduction and extension information, the author also analyzes the use of big data in e-commerce platforms to participate in the intelligent guidance of consumer behavior. In the empirical research part, the author chooses Alibaba Group as the survey object to investigate and analyze its e-commerce platform company. In this paper, quantitative and qualitative analysis methods are used to improve the effectiveness and reliability of the survey results.

Finally, the author analyzes in detail how companies use big data analytic to guide and change consumer behavior and propose more targeted solutions.

Keywords: E-commerce, Consumer Behavior, Marketing Strategy

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1   INTRODUCTION

With the rapid development of data communication network and logistics, the e-commerce industry has been established and developed, people are more and more inclined to shop through e-commerce platform, for people's production and life has brought great convenience. In this paper, the characteristics of consumer behaviour and the factors affecting behaviour in the current e-commerce environment are the starting point, giving enterprises advice on guiding and changing consumer behaviour in the current e-commerce environment.

1.1   Background and objectives

E-commerce is a thriving industry that provides a completely different customer experience than any brick-and-mortar store. The behaviour of online consumers has changed dramatically as a result of the explosion in social media. It also has advanced features that provide faster online communication to enrich the customer experience. The opening up of new online services often encourages e-commerce companies to adapt their digital strategies to their target industries and preferences. At the same time, many companies understand the importance of localizing content to engage their target customers and be understood by their target customers. (Wienclaw Ruth A.2013)

Now the data communication network has been popularized all over China, e-commerce industry is in the golden period of development, however, all this has had a significant impact on the business of brick an mortar stores. At present, the number of enterprises involved in the e-commerce industry is increasing, the competition in the industry is becoming increasingly fierce, and in the electronic environment, the development of enterprises and consumer choices are closely linked.

The objective of this thesis can be divided into the following parts. First, an in depth understanding of China's e-commerce environment and consumer trends will be provided with the help of basic theoretical knowledge. Second, a close link is established between the impact of consumer behaviour on e-commerce, including benefits, challenges and difficulties. Finally, through qualitative and quantitative methods, Taobao.com, China's largest e-commerce platform as the theme of analysis and investigation, summarized how enterprises through the correct use of e-commerce

to develop and guide the consumer market. At the same time, this paper will also analyse Taobao in the use of e-commerce to affect consumers encountered dilemmas and find reasonable solutions and development proposals.

1.2 Research issues

This paper mainly discusses how enterprises can benefit from the impact of e-commerce on consumers, and whether companies can use e-commerce to develop marketing theoretical parts and case studies.

This thesis will provide enterprises with effective theoretical and practical basis as it is engaged in the origin and expansion of the e-commerce platform as well as the impact of e-commerce on China's consumer market. It also provides a more detailed analysis of it and the limitations of e-commerce, which will facilitate further research in the future. For empirical research, this thesis uses two research methods: interview method and customer investigation method. The information used in this study is provided by the case company.

1.3 Thesis structure

This thesis first expounds the basic concepts and main classifications of e-commerce. This means building an accurate, detailed and complete understanding of e-commerce and its structure. In Chapter two, the definition and classification of consumer behaviour will be described in detail. It also includes the difference between traditional consumption and modern consumption. This means identifying the role and impact of e-commerce in the transition from traditional to modern. In addition, how e-commerce affects the consumer behaviour of customers, to explain the importance of e-commerce to consumer decision-making.
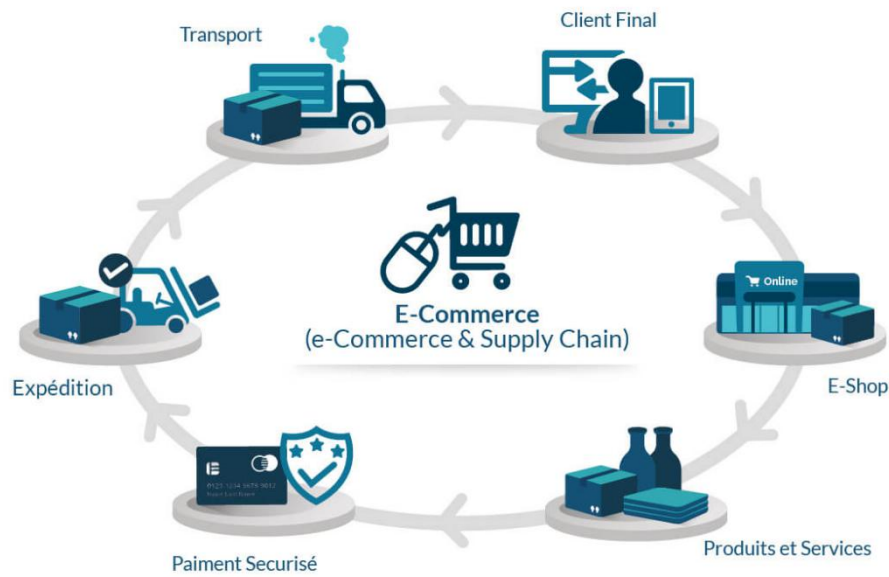
Figure 1. Theoretical framework

In the third chapter, this paper aims to find out the relationship between e-commerce and traditional commerce, but also includes the advantages of e-commerce for consumer behaviour and possible difficulties. How e-commerce can use technology trends to influence consumption is the main goal of chapter four. At the same time, challenges and setbacks have been encountered in the process. In chapter V, case studies and implementation methods will be conducted. It includes problem interviews, survey design, participants and data collection analysis. In addition, the collection and exchange of views between users and relevant workers based on the e-commerce platform will be concluded. In the last chapter, some recommendations will be made based on theoretical and empirical findings.

2   CONCEPTS, CLASSIFICATIONS, AND CHARACTERISTICS OF E-COMMERCE CONSUMPTION

This chapter will introduce and elaborate the basic concepts of e-commerce, including its definition, classification and methodology. Meanwhile, based on the case of this paper is an e-commerce company, and China's largest e-commerce platform, this chapter will also be from the perspective of e-commerce platform to introduce the current situation of e-commerce, including difficulties and opportunities. The main purpose of this article is to make the reader more clearly grasp the core elements of this article, so that more detailed next step of the narrative.

2.1   The basic concept of e-commerce consumption

E-commerce, the concept of the world has not yet been specifically unified definition. The most basic understanding of e-commerce is the electronic trading of products, such as online services or the Internet. With the innovation of the third technological revolution, the world has been affected by the development of international electronic information technology, and the global business activities have been more and more affected by the innovation of electronic information technology. Usually, e-commerce refers to the business activities of exchanging products with information network technology as the medium. This has resulted in electronic transactions and ancillary services over the Internet, intranets and value-added networks. Electronic, network and information processes designed in all traditional business activities, as well as business activities using the Internet as a medium, fall into the category of e-commerce. (Laudon Kenneth C.; Guercio Traver, Carol 2014)

Contemporary e-commerce can be divided into two categories. The first category is based on the type of goods sold (from "digital" content ordering that is consumed online immediately to ordering regular goods and services to "meta" services that promote other types of e-commerce). Category II is based on the nature of the participants (e.g., B2B, B2C, C2B and C2C). (Chaudhury, Abijit; Kuilboer, Jean-Pierre 2002)

E-commerce can be divided into broad and narrow e-commerce. E-commerce in a broad sense is defined as the use of various electronic tools for business activities, and in a narrow sense e-commerce is defined as the use of the Internet primarily for business or

activities. Whether it is the concept of e-commerce in a broad or narrow sense, e-commerce covers two aspects: first, rooted on the Internet as a platform, and second, through the Internet is a kind of business activities.

Electronic Commerce (EC) in the narrow sense refers to business and trade activities conducted globally using electronic tools such as the Internet, including telegraph, telephone, radio, television, fax, computer, computer network, mobile communications, etc. It is based on a computer network to carry out a variety of business activities, including goods and services providers, advertisers, consumers, intermediaries and other related parties to the behaviour of the sum.

The broad term e-commerce derives from Electronic Business and is a business transaction conducted electronically. With electronic tools such as the Internet, so that the company, suppliers, customers and partners, the use of electronic business to share information, the realization of inter-enterprise business processes electronic, with the enterprise's internal electronic production management system, improve the efficiency of the production, inventory, circulation and capital and other aspects of the enterprise.

2.2 Systematics of e-commerce consumption

E-commerce, covering a wide range, depending on the buying power, e-commerce can be divided into six basic types: business-to-business (B2B), business-to-consumer (B2C), consumer-to-consumer (C2C), consumer-to-business (C2B), business-to-consumer administration (B2A) and consumer-to-administration (C2A). The last two types are basically administratively related.
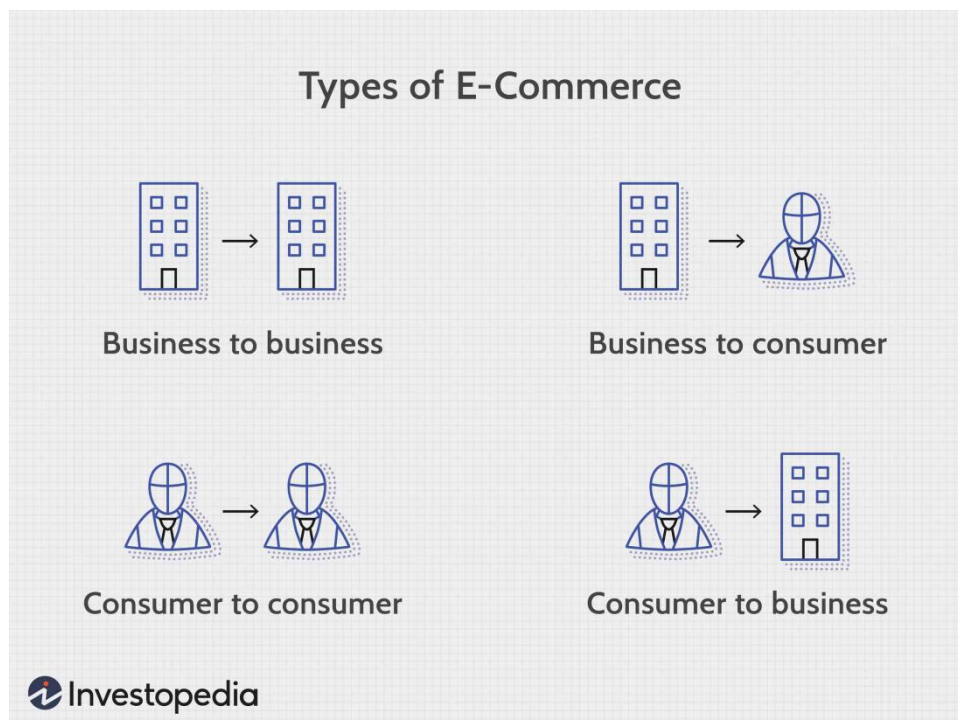
Figure 2. Types of E-Commerce (From Investopedia)

Business-to-Business(B2B). B2B e-commerce refers to all electronic transactions between two companies for goods and sales. Such e-commerce often explains the relationship between the manufacturer of the product and the wholesaler who advertises the product for consumers to buy.

Business-to-Consumer(B2C). B2C e-commerce is perhaps the most common form of e-commerce, which deals with the e-commerce relationship between business and consumers. This e-commerce category also enables businesses to build more personalized relationships with customers.

Consumer-to-Consumer(C2C). This level of e-commerce covers all electronic transactions that occur between consumers. Typically, these transactions are provided by online platforms, but usually using social media networks and websites.

Consumer-to-Business (C2B). C2B e-commerce is not the most traditional form of e-commerce, but when consumers provide their services or products to companies to purchase.

2.3   The perspective of e-commerce platform under the new consumption trend

With the popularization and improvement of information technology, the scale of e-commerce is expanding, and the online trading platform based on e-commerce continues to grow and develop. Taobao.com has abandoned most brick-and-mortar virtual stores, but Alibaba's subsidiary T-Mall operates both physical and virtual stores. The two companies are both part of Alibaba's e-commerce company. This article explores the benefits and challenges of giving up all brick-and-mortar stores at Taobao.com. And the following articles will be Taobao's online virtual experience store development model and effectiveness of a detailed study and discussion. Therefore, it is indispensable to understand the development trend and development status of e-commerce in China.

Table 1. China's online shopping GMV 2012-2019

According to data released in CNNIC's 44th Statistical Report on the Development of China's Internet, as of June 2019, China's online shopping users reached 639 million, with a penetration rate of 74.8 percent. This is down 7.4 percentage points from the 2018 growth rate and accounts for 25.8% of total retail sales of social consumption in 2019. (CNNIC 2019)

At present, China's e-commerce is divided into the following three models:

-Normally e-business (B2C, C2C)

Launched by Alibaba in May 2003, Taobao operates on the C2C model and has evolved into a market leader for Chinese mainland following the introduction of instant messaging and custody-based payment tools for buyers and sellers. In April 2008, Taobao launched a new B2C platform called Taobao Mall to complement its C2C market. The platform changed its name to T-mall in January 2012. Taobao held China's largest online shopping festival on November 11, 2009, with a trading volume of 50 million CNY, after Alibaba filled the B2C market.

-New e-commerce change (ABC)

ABC (Agent, Business, Consumer)

ABC model is a new type of e-commerce model, known as the fourth largest model in the e-commerce industry after Alibaba B2B model, JD.com B2C model and Taobao C2C model. It is built by agents, merchants and consumers of the production, operation, consumption as one of the e-commerce platforms.

After 4G's widespread popularity in China, Alipay, Alibaba's third-party mobile and online payment platform, which connects Taobao and T-mall, overtook PayPal as the world's largest mobile payment platform in 2013. Alipay has worked with more than 65 financial institutions, including Visa and MasterCard, to provide payment services and security for Taobao and T-mall, as well as more than 460,000 online and local Chinese companies. The Alipay app also allows users to add services from their own different companies to create a more personalized experience. Alipay drives and stabilizes the ABC model.

-Large-scale public business (B2B)

In 2014, Alibaba.com, founded in 1999, became the world's largest online B2B trading platform for small businesses. Alibaba.com offers three main services: the English-language portal Alibaba.com, which handles sales and regions between importers and exporters from more than 240 countries. On the Chinese portal 1688.com, it is responsible for managing B2B transactions in China and managing the

transaction-based retail website AliExpress.COM (Global Express), which allows smaller buyers to buy small quantities of goods at wholesale prices.

China's e-commerce is currently in a saturation and transition period, innovation and reform are the main way to promote the development of China's e-commerce. Either way, e-commerce platforms have problems such as limited development and limited market expansion. Without the application of an effective data monitoring and analysis system, the customer's needs will not be properly identified.

2.4　SWOT analysis

-Strength analyses

E-commerce, as a new trading method, brings production enterprises, circulation enterprises and consumers and governments into a new environment of network economy and digital existence. In an e-commerce environment, where people are no longer geographically restricted, customers can complete the more complex business activities of the past in a very simple way. Such as through the network bank can access account funds around the clock, query information, etc., at the same time, the quality of service to customers has been greatly improved. Secondly, e-commerce can standardize the workflow of transaction processing, integrate manual operation and electronic information processing into an integral whole, which can not only improve the utilization rate of human and material resources, but also improve the tightness of system operation.

-Weakness analyses

In e-commerce, security is a very important core issue, it requires the network can provide a terminal-to-terminal security solutions, such as encryption mechanism, signature mechanism, security management, access control, firewall, anti-virus protection, which is very different from traditional business activities.

Secondly, the quality of the transaction itself and the corresponding regulation are also e-commerce issues. Ensuring the quality of products and the credit management of both parties to the transaction is one of the risks of e-commerce. In addition, after skipping

the traditional transaction link, how to provide customer satisfaction service and ensure the quality of service is also required by e-commerce.

-Opportunity analyses

Business activities themselves are a process of coordination that requires coordination between customers and companies, manufacturers, wholesalers, and retailers. In the e-commerce environment, it requires banks, distribution centres, communications departments, technical services and other departments to work together, the whole process of e-commerce is threaded. E-commerce activities themselves cannot be separated from reality, which means that the construction of supporting services is also part of e-commerce. For example, as a terminal distribution service, as a central warehousing system, as a link between the communication coordination department, are important to improve the stickiness of e-commerce to customers.

-Threat analyses

E-commerce transaction channels are basically the same as traditional trading channels and are determined by risk control. The main risks are as follows:

Approval process. Need to fully understand the merchant's real business situation and financial situation, audit the merchant to provide goods and services are legal, compliance. There are security and legal risks once poor quality, or illegal merchants enter the platform to trade.

Trading link. Review the integrity of the description of goods or services and take early warning, inspection and reporting measures against traders who frequently change the content and terms of transactions. Analysis of transactions and business nature, operating conditions, financial qualifications, etc., to reduce the possibility of non-compliant operations and other risks. Reduce the probability of unfair competition, cash outflows and money laundering.

After-sales and logistics. Implement uniform policies on returns, refunds, delivery and transaction cancellations, as well as maintain a complete customer service system. Many frequent complaints will reduce customer satisfaction and affect the e-commerce platform's own reputation and brand image.

3   THE CONCEPT OF E-COMMERCE AFFECTING CONSUMPTION BEHAVIOR

This chapter mainly explains the concept theory of consumption behaviour and consumption habits. At the same time, in order to better understand the impact of e-commerce on consumption in the current environment, and how e-commerce works and functions in this process. The differences and key elements between e-consumption and traditional consumption will be described in detail. As e-commerce is the representative of new technology consumption, it directly reflects the important influence of science and technology on consumers themselves. Therefore, these will also be explained in detail in this section.

3.1   Introduction of consumer behavior

Consumer behaviour is a study of individuals, groups or organizations and all activities related to the purchase, use, and disposal of goods and services, as well as how consumer sentiment, attitudes, and preferences affect purchasing behaviour.

Consumer behaviour is usually related to all activities related to the purchase, use and disposal of goods and services, including the emotional, psychological, and behavioural responses of consumers before or after these activities. Until the 1950s, consumers were dominated by markets influenced by classical economic schools, and consumer behaviourism itself had no interdisciplinary influence. (Tadajewski, M 2009)

With the development of science and technology, consumer behaviour began to break away from the classical economic model. Fishbein and Ajzen, as well as Howard and Sheth, developed traditional models of consumer behaviour in the 1960s and 1970s, arguing that online consumer behaviour was different from offline behaviour. (Fishbein, M., and Ajzen)

Sun and Yunjie's research have identified two types of consumer value in purchase, namely product value and shopping value. Products for online and offline shoppers may be of similar value. However, the shopping experience for online shoppers will be very different. In an offline shopping environment, consumers get satisfaction (hedonistic motivation) from a physical store or retail environment. For online purchases, shoppers

get satisfaction with their ability to browse the site and the convenience of online search, which allows them to compare prices and "shop-to-house" with minimal time. As a result, online consumers are motivated by more external factors. (Sun C & Yunjie X)

Traditional consumption and e-commerce consumption in a broad sense belong to the same type, are consumers through different ways to consume the process. However, as far as consumers are concerned, e-commerce consumption has a distinct and unique attraction. Specific can be divided into five stages: problem recognition, information search, alternative evaluation, purchase decision and post-purchase evaluation. (Khosla, Swati 2010)
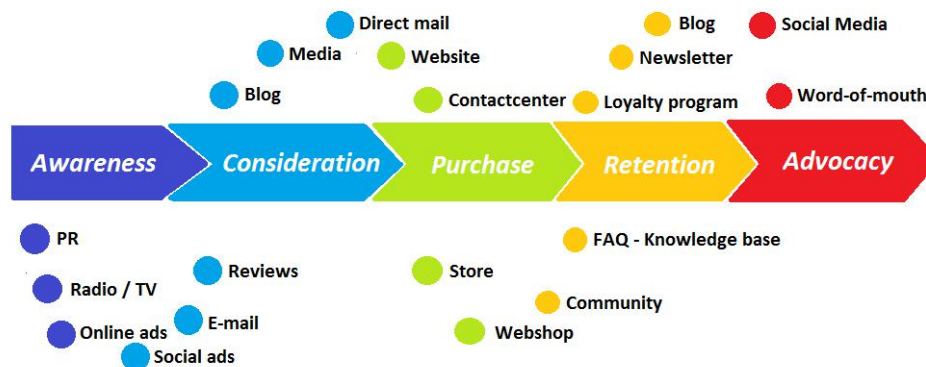
Figure 3. How e commerce active

3.2   The difference between e-commerce consumption and traditional consumption

A simpler way of thinking about problem identification is that the consumer can determine there that he or she meets certain needs in the "market" of a product or service. The power of basic needs drives the entire decision-making process. (J. Scott Armstrong). In traditional consumption, consumers are driven by basic survival needs, daily needs and special needs. The proportion of unconventional consumption is low. When the Internet appeared, consumers were more driven by information shocks and marketing, and impulse consumption and new consumption increased in frequency. Technology or innovative products account for a much larger proportion of the market than traditional products.

In the information search stage, consumers in traditional consumption are influenced by information limitations, which come from geography, economy, media and other factors. And the emergence of the Internet, complement the shortcomings of traditional consumption. Consumer information itself circulates as data on the Internet, which means that consumers can obtain brand/product information from many different platforms. The establishment of a consumer demand, through the user's consumption patterns and their behaviour and habits of analysis and research, has become a part of the marketing of e-commerce enterprises. This behaviour was often unreliable and time-er-timed before the internet its appearance. (Kotler P. & Keller, K. 2006)

In traditional consumption, purchasing decisions and alternative evaluation are often the most restrictive aspects. Limited by information and other non-subjective factors, consumers' consumption is limited to limited consumption space. This means that the consumer's purchasing decisions themselves are controlled by the non-consumption itself. This leads to the inebriety of consumption. Similarly, feedback and evaluation after consumption is complete lacks science, effectiveness and reliability. However, the emergence of e-commerce greatly expanded the consumer's consumer vision, consumer demand and consumer desire has been liberated. (MacInnis, D. J.; Pieters, R. & Hoyer, W. D 2014)

3.3 The impact of e-commerce on consumption guidance

Consumer behaviour is influenced by a variety of internal and external factors. The main body of consumer behaviour is consumer consciousness. Consumer consciousness refers to the consumer's awareness of commodity consumption formed in the long-term shopping environment and purchase activities. (Adgo)

In terms of internal influences, consumer behaviour is influenced by personal and interpersonal factors. From the attributes of the individual to the values of the individual, to the circle of his life and interpersonal communication, are the internal driving force of consumer behaviour. This driving force is not just physiological demand, but also psychologically driven psychological consumption demand. Therefore, marketing is itself a driving force and influence on consumer behaviour. However, traditional marketing is limited by geography, propaganda, cognition and experience, and the influence on consumer behaviour is limited. After the emergence of e-commerce, the

interaction of information provides the source power for marketing itself. The controllability of consumer risk increases, the scope of consumption expands, and the corresponding market grows simultaneously. At the same time, e-commerce through the interpersonal network to each other, from the internal perspective to stimulate new consumer demand, to achieve the cultivation of new consumption behaviour, and for the cultivation of consumption habits to lay the foundation. (Johnson, M.D. and Lehmann, D.R)

In terms of external factors, cultural, sub-cultural, social class and other group factors play a decisive role in consumer behaviour. Culture itself is an abstract, broad factor. It affects basic psychological areas, such as self-identification and motivation; Subculture, on the other, transcends demographic, geographic and social boundaries and is based on a shared commitment to a common brand or product. Sub-culture represents a new consumer trend. Social class refers to the relatively equal division of society, usually based on socio-economic variables, such as education, income and occupation. The consumption behaviour of consumers of the same social class is similar. The influence of the above factors on consumption depends on the spread of social media, so in the traditional paper media era, consumption itself is a regional behaviour. In the era of electronic information, the media channels have been expanded, and the influence of external factors such as culture has increased. (Torelli, C.J. and Rodas, M 2017)

4   GUIDE CONSUMER BEHAVIORS BY E-COMMERCE WITH BIG DATA

In most people's understanding, big data is the enterprise that uses data to optimize its processes, products, and decisions to make operations more efficient. In fact, big data is a comprehensive concept that encompasses both technical and commercial dimensions. At the technical level, data is not a new concept, it was accompanied by the generation of data from the moment the computer was born, but there was no big data concept at that time. All the time, to have a large amount of data storage, efficient data calculation, all need to have a very strong computer to support. E-commerce is best known for its cloud computing. The most important thing for business is to enable businesses to get more out of their data. It is diverse data that accumulates and computes large amounts of data to generate greater value and even disruptive innovation in business. This diversity refers to the value of being able to connect multiple data together and make it commercially relevant through their association and interaction. As an e-commerce company associated with the Internet, whether it can make good use of big data and realize the interaction of guidance of consumers will determine its position in the market competition.

4.1   The merit of e-commerce using big data for marketing

For a long time, data collection in traditional consumer markets has the characteristics of singleness and typicality. The market tends to be based on consumer groups, and the analysis of groups is much greater than the importance attached to individual consumers. The consumer itself is an important node of the media, so the collection of consumer data is an important factor in the rise of the e-commerce consumer market. In the traditional consumption environment, individuals are neglected, and traditional market ideas that emphasize group characteristics lack the care of individual customer satisfaction in an e-consumer environment.

Typically, data can be summed up into four categories by whether it is positive and predictable, namely, mutual and operational data acting within the enterprise, and social and competitive data acting on the outside of the enterprise. For enterprises, data that is positive and predictable is often considered an operational indicator, while data that is

reverse and predictable is often avoided as a risk. For e-commerce companies, data analytics can lead to process optimization.

According to IDC, the digital data world will grow by 61% by 2025 to a global staggering 175 ZB. There is no denying that a large part of the digital world belongs to e-commerce, taking advantage of customers' social media activity, web browser history, geographic location, and data about discarded online shopping carts. Global big data in the e-commerce industry is expected to grow at a compound annual rate of 13.27% between 2019 and 2028. In essence, big data is a data set that can be analysed to reveal patterns and trends in complex areas, such as customer behaviour.

Some of the key benefits of using big data technologies include making better strategic decisions, improving operational control processes, better understanding of customers, and significant cost reductions. E-commerce companies can leverage large amounts of data that can support predictive analytics tools to predict customers' future behaviour based on their current behaviour patterns. This, in turn, helps retailers improve their shopping experience. At the same time, big data-based analytics solutions can help e-commerce companies tap new customer groups and adjust inventory requirements in real time. Providing a great customer experience is what makes e-commerce retailers stand out from the competition. It also leads to ways to increase customer loyalty, which is very important value in the online world. Price is one of the main factors affecting customers' desire to buy, and big data-supported solutions can help e-commerce companies solve price problems by collecting and comparing the prices of various goods on the Internet. Managers can adjust prices based on competitor prices and other data, such as the popularity of goods or the average number of sales. What's more, big data enables them to do this in real time and instantly match changing demand, supply, or customer trends.

Big data solutions can reveal customer satisfaction issues at all levels, from product delivery to brand awareness, such as by analysing social media. Big data analytics can determine the exact moment of change in customer awareness or satisfaction. Once the company has identified areas for improvement, it is much easier to improve the quality of customer service. At the same time, big data can help companies deliver a more personalized shopping experience. This has a huge impact on buying decisions and

loyalty. In a 2017 survey published by Annex Cloud, 86% of customers said personalization played an important role in their purchase decisions. (Annex Cloud 2017)

4.2   Challenges and difficulties

Big data will have a huge impact on the e-commerce industry, and its popularity is likely to remain the same. Experts predict that by 2040, 95% of purchases will be made through e-commerce. (Statista) So e-commerce enterprises need to implement big data analytics to upgrade their customer support and better understand their customer base. In this analysis, there will be risks and challenges.

First, big data itself is just a tool, and the way it is used determines the extent to which the process succeeds or fails. Second, big data is a complex and sophisticated technology, and any detail deviations and errors can lead to a domino effect that can lead to failure and huge losses. In addition, the security of data sources will be the key to the credibility of the enterprise. Much of the customer data in the big data collection process is sensitive. Therefore, the privacy and security of data is an essential part of determining an enterprise's reputation. Big data is a cloud-based data platform, and system hardware and software are an important part of the data platform, which means high operational and maintenance costs for cloud computing. (Artur Olechowski 2020)

Technically, mass data storage and efficient data computing require a very powerful computer to support it, and the hardware costs of multi-million-dollar mains and tens of thousands of dollars of maintenance costs per month are not affordable by every business. In the face of high costs, the use of data has become a "luxury" for enterprises. From a business perspective, the exploration and application of data correlations is a challenging challenge. The transformation from data to customer entities is a long and tortuous process that requires a large amount of data across perspectives, media, and industries. (Wedel Michel)

As e-commerce companies, the size and market share of enterprises limit their use of big data. Giant e-commerce companies often have their own or co-ed data collection canters, also known as cloud platforms, such as Google and Amazon, Alibaba and Taobao. They have mega data sources, so they need big data to address the orientation

of consumer behaviour. For small and medium-sized e-commerce companies, the data itself lacks standardization and effectiveness, they rely more on the data of leading enterprises, is the follower of the trend rather than the guide. As a result, these companies lack reasonable responses to the risks of time-available and unreliable data.

5 EMPIRICAL STUDY

This chapter mainly introduces the methodology selection of empirical research in this paper. This includes the basic definitions of two different approaches, their specific causes and feasibility. Incidentally, it will elaborate on the specific data collection and other practical operations and management, the purpose of this chapter is to give readers a better understanding of the method and the information collection and processing methods of this article. Finally, this paragraph will also provide a brief description of the validity and credibility of information gathering.

5.1 Methodology

Quantitative analysis describes and interprets objects based on statistics and numbers. (Woodley Alan 2004) It is designed to interpret data collected as phenomena through numerical variables and statistics. Quantitative analysis includes computational and statistical analysis methods.
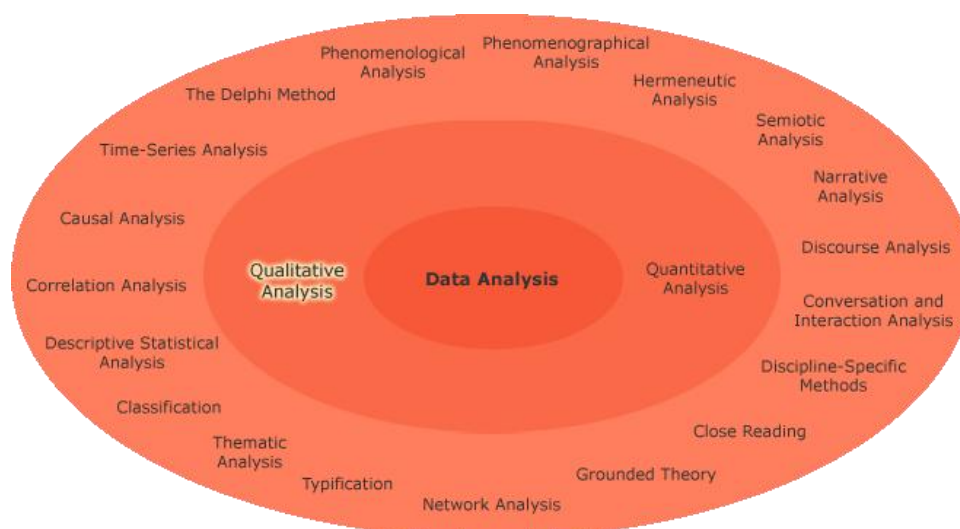
Figure 4. Data analysis methodology

Quantitative analysis begins in the descriptive statistical analysis phase, after which the causality and correlation are analysed more carefully, and classification is generated based on descriptive statistical analysis. Prior to the study, the authors planned the entire process of quantitative analysis, as data collection methods and data analysis would affect each other for research purposes. A methodology pair is formed through qualitative and quantitative analysis. Qualitative analysis is designed to enhance a

holistic understanding of the quality, characteristics and meaning of the object under study. There are well-defined differences between qualitative and quantitative analysis. In this study, the authors used both strategies and studied individual research topics in different ways. In this paper, the author uses experimental methods as a tool to control variables and environments in experiments to measure the causal relationship between arguments and factor variables. Research is conducted by designing a questionnaire based about the study and distributing it to the subject.

The research object (user) needs to fill in the business of the research subject (empirical company). And unified by the author to collect responses and conduct in-depth analysis and summary. The questionnaire contains a variety of question types to meet different needs, such as single/multiple choice questions, short answer questions, etc. At the same time, the questionnaire collected basic information provided by respondents, such as gender and age group. Diversified question placement can effectively increase the interest of respondents to avoid ineffective perfunctory responses. Multiple problem settings are also conducive to multi-angle analysis.

This article uses qualitative analysis to enhance the overall understanding of the quality, characteristics, and meaning of the object or subject under study. (Shuttleworth Martyn 2008) Some of these methods have narrow analytical focus related to specific analytical methods, while others have a broader analytical focus on processing data. Determine the origin of quantitative and qualitative boundaries of qualitative change by emphasizing perspectives on the environment, context, purpose and meaning of expressions, languages and objects.

5.2   Implementation

The questionnaire consists of 16 questions, which basically cover the basic information of platform users and unconventional users, as well as the frequency of their usage habits, and the comparison with other ways of electronic shopping. At the same time, in order to ensure a real and effective response, users of the e-commerce platform and users with relevant experience will be surveyed through advocacy. These users usually have a certain foundation for the online experience and are happy to provide their own feedback for the survey. Survey questions take a variety of forms, including individual/multiple choices, basic and advanced related issues. There is also a short

question-and-answer session. When answering, the respondent can answer the question selectively, without setting a mandatory answer requirement.

In addition to distributing the questionnaire, the authors conducted simple interviews and surveys of business practitioners and prepared a total of seven questions in advance. Compared with the questionnaire, the interview was more targeted and comparative. The aim is to provide substantive information support for the conclusion analysis and summary. Because of the current situation in the world, the whole process is carried out by network video, and the whole interview and information collection is not affected by adverse factors.

5.3 Validity and reliability

To ensure its effectiveness during the study period, the questionnaire covered more respondents to ensure that the results were supported by sufficient data. Meantime, respondents were anonymous throughout the survey, which meant that respondents were able to answer questions more easily, without a psychological or realistic burden. In more in-depth interviews, the author worked with middle managers directly involved in the operation of the business, following the principle of not disclosing any business information. Because respondents are at the heart of the company, they have more expertise and better accuracy about the e-commerce platform and its operating model.

6   EMPIRICAL STUDY AND ANALYSIS

This chapter focuses on the specifics of the case study. This includes the company's background, respondents' work and education background, management's analysis, and analysis of the statistical results of the platform user questionnaire. The authors also point out the main reasons for the results while analysing the data.
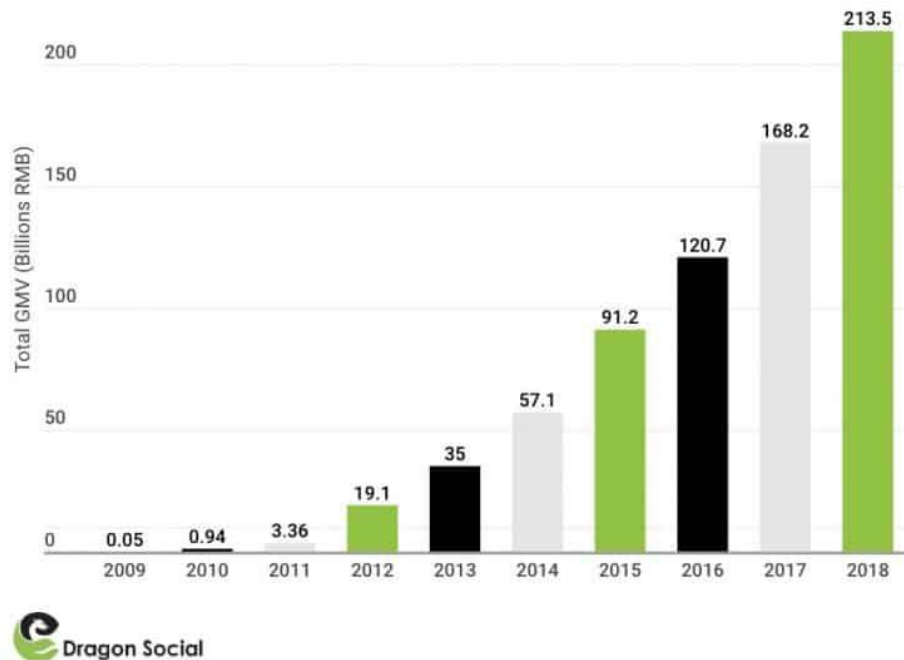
6.1   Basic information of the corporation

Alibaba Group Holding Co., Ltd., founded on April 4, 1999 in Hangzhou, Zhejiang Province, is a multinational technology company in China specializing in e-commerce, retail, Internet and technology. Through the portal to provide consumer-to-consumer (C2C), business-to-consumer (B2C) and business-to-business (B2B) sales services, as well as electronic payment services, shopping search engines and cloud computing services. It has and operates a diverse portfolio of companies in multiple business areas around the world. The company has the world's largest B2B (Alibaba.com), C2C (Taobao) and B2C (T-mall) markets. Its online sales and profits have outstripped those of all retailers around the world, including Wal-Mart, Amazon and eBay. (Alibaba's company profile)

Alibaba's business scope includes e-commerce and retail services platform, cloud computing and artificial intelligence technology, fintech and online payment platforms, entertainment services, Internet services and other services. (Alibaba's company profile)

6.2   Big data and e-commerce marketing

Launched by Alibaba, The Singles' Day or Double 11 is currently the world's largest physical retail and online shopping day. According to Alibaba's official data, on November 11, 2019 alone, total merchandise turnover reached 268.4 billion yuan (about 33.4 billion euros), according to Alibaba Cloud Intelligent Computing Platform Division Researcher Guan Tao in an exclusive big data conference on Alibaba's economic big data platform construction and considerations, from a technical point of view and the company's point of view, the biggest contribution of big data to consumers is that the platform will match tens of millions of products with billions of consumers, The competition in the dual 11 market is the competition between the big data and AI capabilities of the companies involved. (Alibaba Cloud Max Compute)

Table 2. Alibaba's Double 11 GMV 2010-2018

6.3 Data and interview analyses

The purpose of this chapter is to analyse the basic information and findings of the entire interview. A total of 11 people were interviewed anonymously and non-anonymously in seven interviews. The author is not authorized to publish the names of the interviewees. Respondents came from Alibaba's mid- and grass-roots positions in design operations, marketing, planning, big data technology and analytics. After questionnaire survey and interview, the author has a deeper understanding of the operation of e-commerce platform and the influence of enterprises on consumer behaviour through big data and other technology.

1. *What are the main means by which the company collects user data legally and reasonably?*

The first problem is to understand the company's information collection channels and means of collection. Based on the answers collected by the authors, several respondents answered similarly. So far, Alibaba has mainly collected data through the business of its

related companies, namely logistics, warehousing, consumer shopping carts, consumer purchase records, consumer spending power, consumer browsing records and so on. The company also partners with other social platforms to share and exchange authorized legitimate information data. From this answer, it can be concluded that Alibaba has sufficient and effective data sources and can be recycled.

2. *Has data analytics and cloud computing contributed significantly to the business promotion of e-commerce platforms? In what ways.*

The purpose of this issue is to understand the positive impact of big data on marketing from the perspective of employees and managers. According to respondents, Double 11 can only be completed in one day for consumers, but this is a long-term project that requires a year of dedication and planning and affects the lives of millions of platform merchants. From Alibaba's point of view, the business and technology of DoubleClick 11 requires a lot of thought and preparation. The success of Double Eleven comes from Alibaba's macro-adjustment and micro-control of the whole through data analysis. Planning and provisioning of products such as warehousing, and logistics based on the results of cloud computing. The entire process requires significant resource investment, and this model does not apply to small and medium-sized enterprises.

3. *Are there any difficulties and challenges in using analysed data to promote and guide consumers? If so, how did you solve it?*

The main purpose of the third question is to learn more about the difficulties and possible solutions encountered in the development and application of big data on e-commerce platforms. According to the survey results, Alibaba's biggest difficulties in the Double Eleven project are manpower and computing. From 2015 to 2019, the annual growth rate of computing on the 11th day of the double eleven days reached 70%. This represents the need for huge number of operators, analysts, and businessmen to run fine-grained algorithms on this data for data mining and information processing. And the process began a few months ago. For the specific technology involved, the three prerequisites for the success of Double 11 are: large amounts of data, low-cost computing power, and rapid data iteration. But whether the average small and medium-sized enterprise can support such a large scale remains a question.

4. What do you think is your company's biggest difficulty in operating and developing an e-commerce platform?

This issue further explores the possible obstacles that e-commerce platforms face in guiding and developing consumer behaviour. According to the survey results, Alibaba's most frequent and easy problem is the verification of counterfeit products and supplier qualifications. Verification and support of suppliers, as well as information leakage incidents experienced by platform users, are major risk issues in the data development process. Consumers are primarily targeting platforms rather than interested parties when they encounter problems. In the audit link and the follow-up supervision link, the risk has always existed. Because suppliers and merchants can be transformed, the platform itself must oversee all transaction processes and safeguard consumer information security.

5. What do you think are your strengths over other companies in the same industry?

The aim of this issue is to understand the feasibility of other industries from the perspective of internal practitioners. And for small and medium-sized enterprises in the same industry to provide development templates for reference. According to the results, the most mentioned keyword is closed loop. That is, Alibaba has a complete corporate ecosystem, its own business cycle can minimize foreign risks. And in the process of business operations, but also continue to complement their "short board" industry. The existence of a business cycle, not a chain, is key to Alibaba's success. Small and medium-sized enterprises need to start from the construction of a solid business chain, and constantly reduce uncontrollable risk links.

6. Do you collect customer feedback and adjust based on it?

This question is mainly used to learn Alibaba's response to user feedback and how to use user feedback to improve its own service quality. According to the results, Alibaba collected a large amount of user feedback, because of its own presence of feedback blocks, enterprises encourage customers to comment on feedback. Moreover, Alibaba's feedback to customers often has a continuous interaction behaviour, deepening user stickiness and improving user satisfaction. The process of gathering feedback is itself a

source of information for consumer behaviour. Through this feedback, Alibaba can make targeted adjustments to the needs of users. These measures are worth learning from small and medium-sized enterprises, as this is a good virtuous circle.

7. *Many small and medium-sized businesses now plan to leverage big data for cloud computing and analytics to support their own e-commerce. Based on the current situation in the Chinese market and the experience of e-commerce platform, do you have any suggestions for these companies?*

The last problem is to give enterprises trying to join the market a holistic perspective through a developed and improved e-commerce platform to obtain valuable market experience and suggestions in the process of exploring the market. Based on the job functions of the respondents, the average employee recommends that businesses hire more or work together to use established cloud computing enterprises, using off-the-job tools to skip the high initial layout costs. Management believes that enterprises should use and cooperate in sharing at the same time, learn from experience and models, and gradually develop their own large data centres. In general, in the early stages of development more choice of low-cost, the most effective methods, and the development of more information channels when the development into a slow phase, and eventually build their own information calculation and application system. This way can effectively avoid the competition of mainstream e-commerce, to a certain extent, reduce the risk.

6.4   Data analyses of questionnaire

The questionnaire consists of 16 questions, which are distributed mainly by e-mail. Most of the recipients are e-commerce-related practitioners and users. A total of 100 questionnaires were sent over a period of 2 weeks during the collection phase, of which 86 were responded effectively. Clearing out some of the questionnaires with invalid and inadequate responses, the authors randomly selected 30 questionnaires from the remaining valid questionnaires as responsibility questionnaires. Throughout the process, the author did not participate in or influence the respondents' subjective wishes, and all reactions were based on the independent thinking of the interviewee.

*Question 2 Age of interviewees*
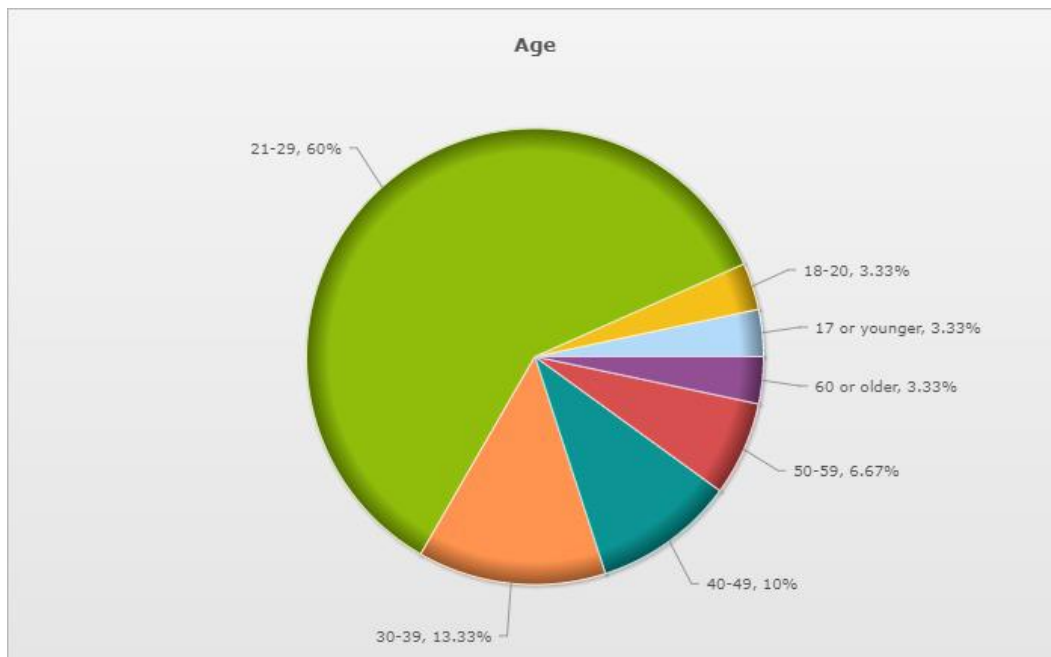
Figure 5. Age of interviewees

The main purpose of this question is to understand the age composition of the overall respondents. According to the results of the survey, the largest proportion of users between the ages of 21 and 29 is close to that of users aged 40 to 49, with a smaller proportion of users aged 50 and over. According to the survey data, the main users of e-commerce platform are 21 to 49-year-olds and middle-aged people, that is, with a certain economic basis and strong independent ability, and strong desire to buy. This provides data support for the company's strategy for developing relevant customers.

Question 3 The way of knowing Alibaba or other e-commerce platform
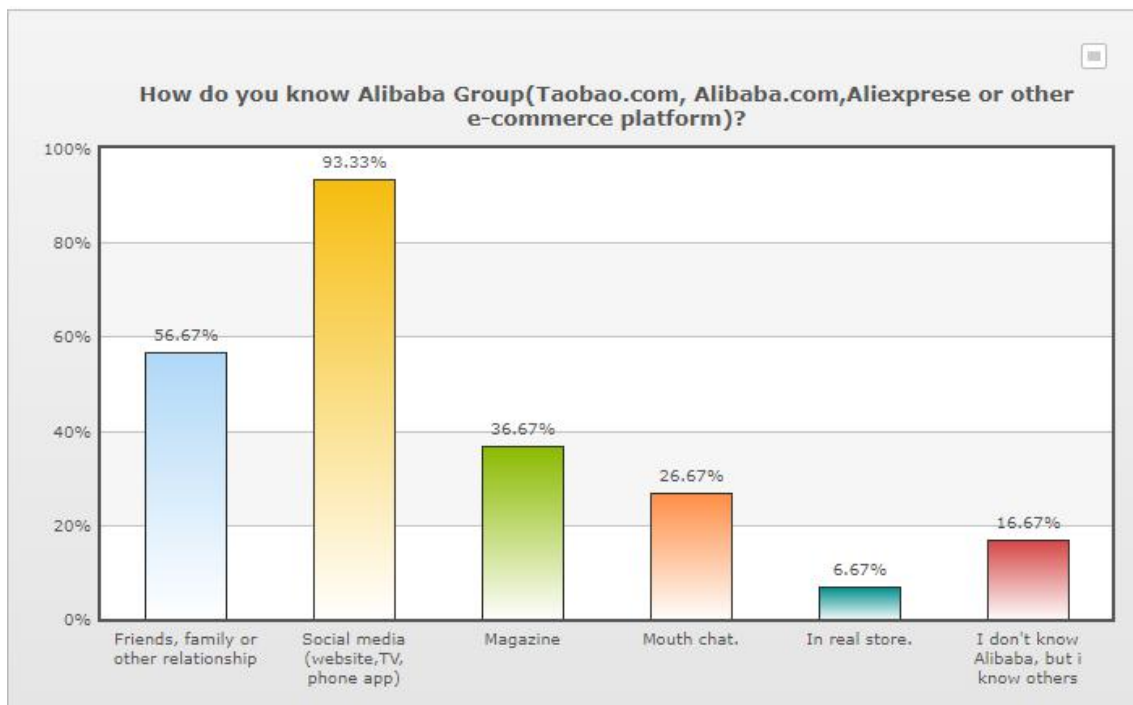
Figure 6. The way of knowing Alibaba or other e-commerce platform

The purpose of the third question is to understand the respondents' primary source of information, namely, where they learned about the e-commerce platform. Of these, 93.33 percent said they learned about Alibaba or other e-commerce platforms through social media and other online channels, while others learned about Alibaba through networks, newspapers, newspapers and magazines, but only 6.67 percent said they learned about Alibaba from brick-and-mortar stores, so you can see Alibaba's flaws in this part of the physical store.

Question 4 The first experience of e commerce shopping.
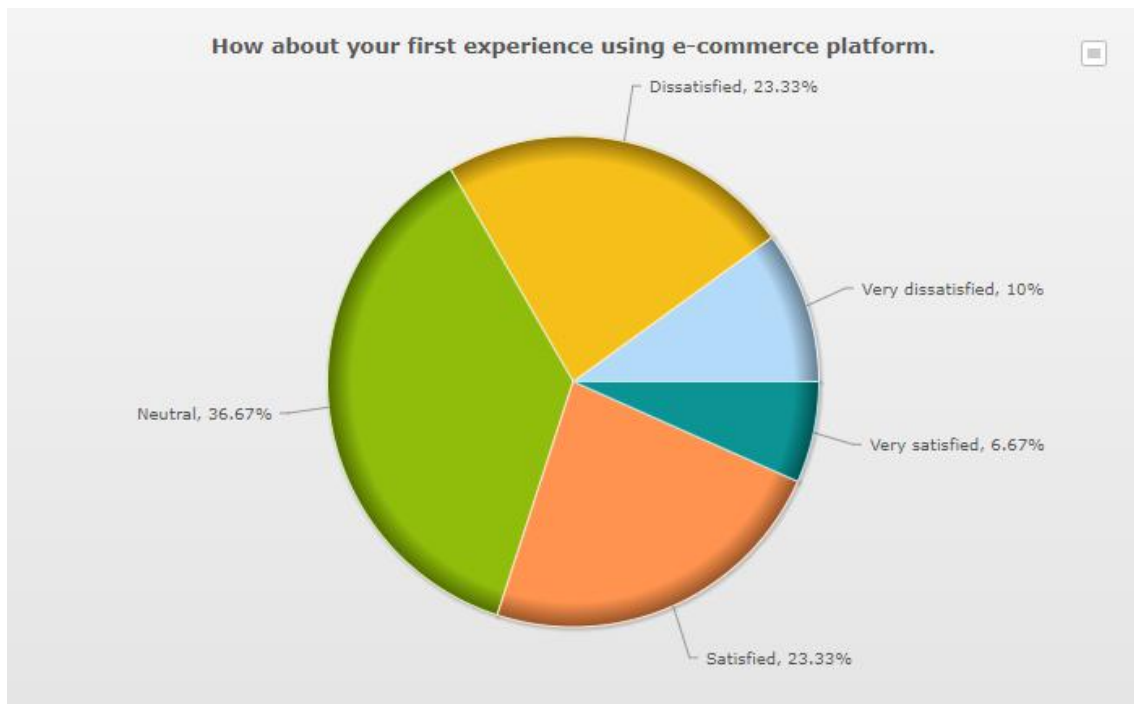
Figure 7. The first experience of e commerce shopping

The main purpose of the fourth question is to understand the user's first impression of the platform. Through the pie chart, we can see that the total number of positive and negative attitudes is the same, and the proportion of the two is like the proportion of neutral people. This concludes that there is room for improvement in the platform's user first impressions. Currently, only nearly two-thirds of users are neutral or satisfied. The company must pay more attention to the factors that disgust users. Reduce unnecessary, redundant pushes and recommendations.

Question 5 The user's willingness to collect personal information on the platform
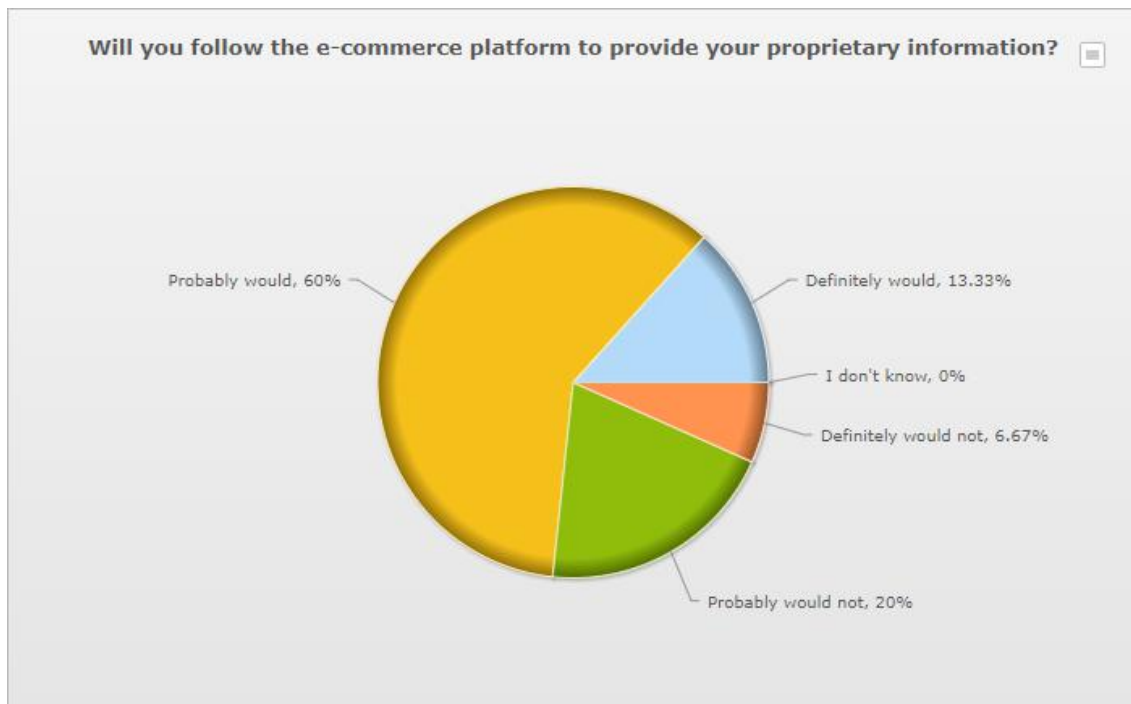
Figure 8. The user's willingness to collect personal information on the platform

The fifth question is mainly about the information performance and attractiveness of companies and their e-commerce platforms. The survey found that 66.67 per cent of users were willing to provide appropriate information, while the remaining 33.3 per cent refused to provide more personal information for e-commerce platforms. This issue reflects the fact that a significant proportion of users still have a negative attitude towards the platform's information security. The company's information security system still needs to be improved.

Question 6 Consumer desire of e commerce users
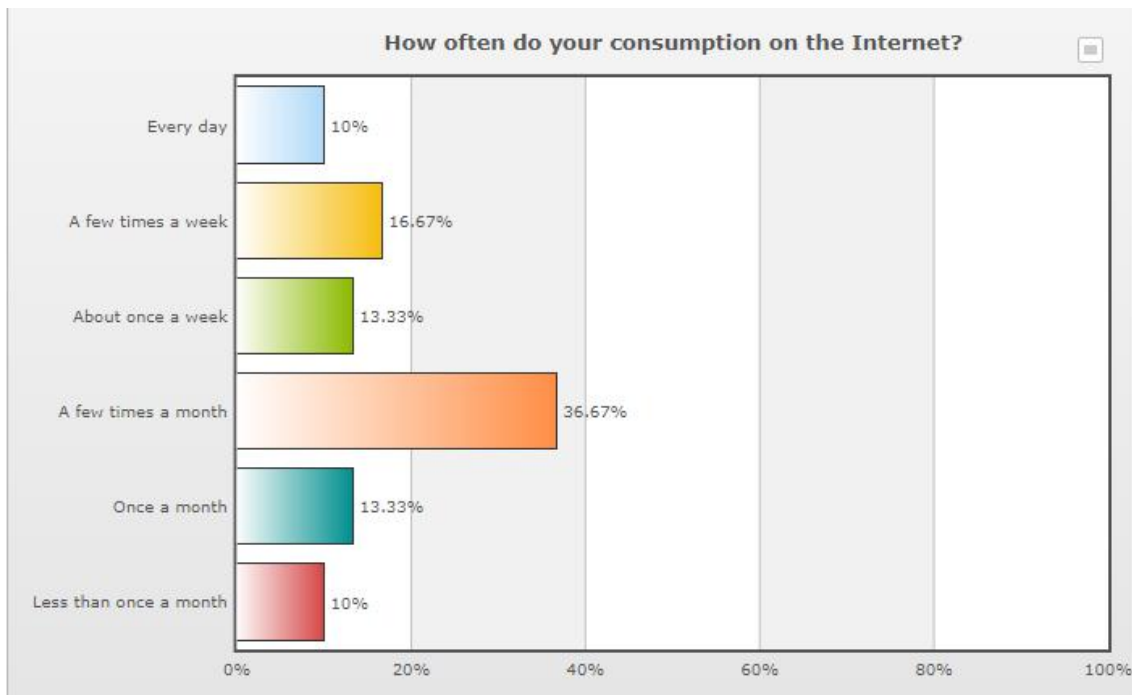
Figure 9. Consumer desire of e commerce users

The sixth question focuses on the user stickiness of e-commerce platforms and their consumer enthusiasm/consumer desires. According to the survey results, more than 70 percent of users use behaviour at least once a week. The use of these e-commerce platforms can be considered as potential consumer behaviour. As a result, the company's market still has a lot of room for expansion.

Question 8 The user's personally recommended satisfaction
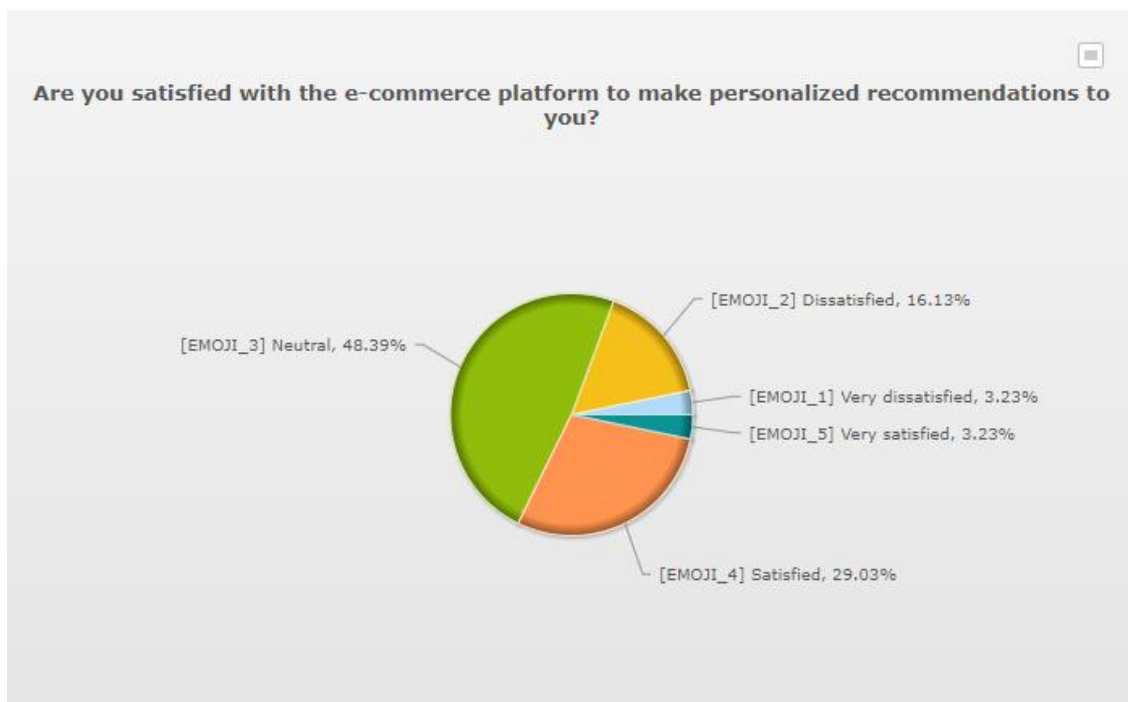
Figure 10. The user's personally recommended satisfaction

The purpose of this question is to investigate the e-commerce platform's special recommendations and message push for individual users to understand the attractiveness and practical efficacy of personal recommendations. According to the results of the survey, 32.26 percent of the target population was effectively affected by the recommendation. Most users don't have a special feeling about recommendations. This means that e-commerce recommendations under big data analytics are still flawed to identify and address the causes of user dissatisfaction or lack of attractiveness to users in order to effectively increase the attractiveness of customers.
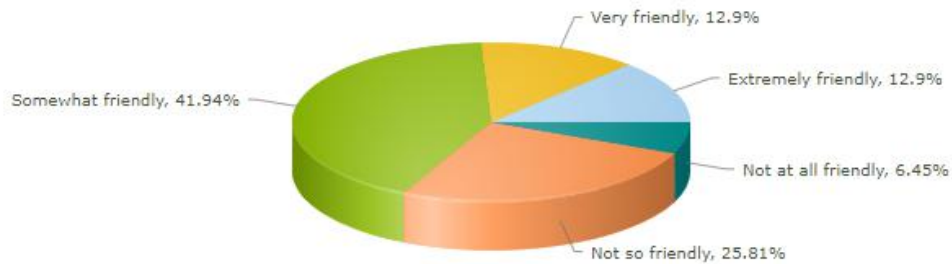
Question 9 The quality of recommended product
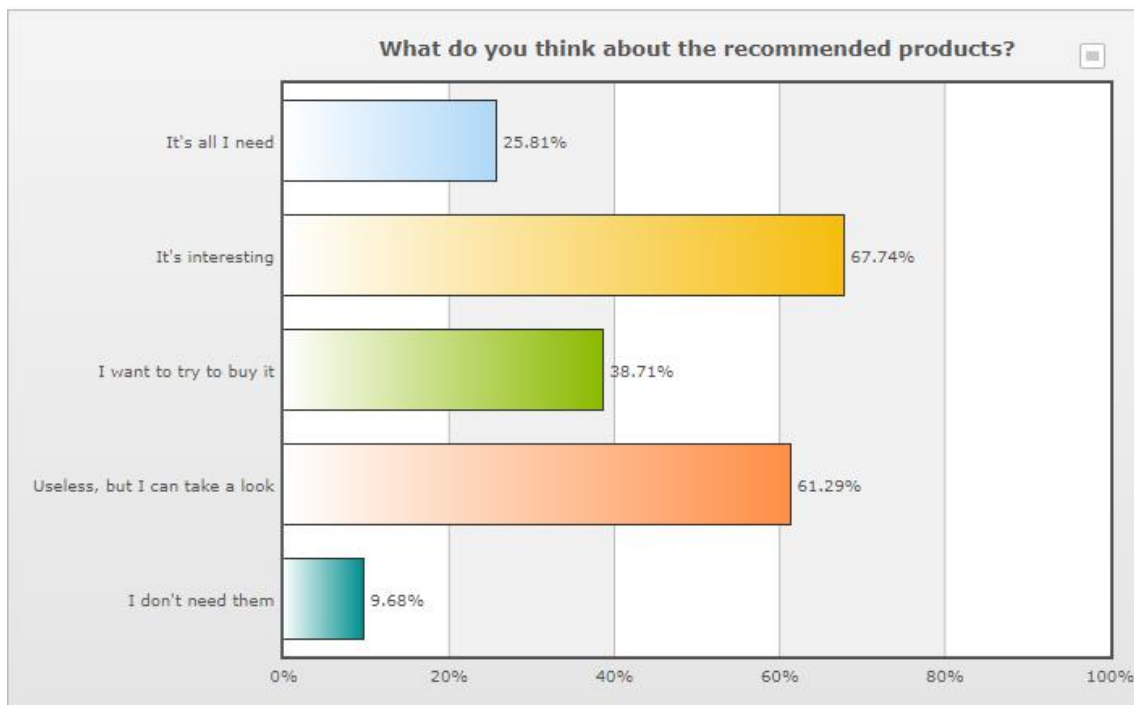
Figure 11. The quality of recommended product

The purpose of this question is to understand the quality and attractiveness of products that e-commerce provides to individual users. More than 90% of users said they would like to browse or try to buy a recommended product. But nearly 10 percent of users said they didn't need recommended products at all. This means that the results of big data analytics are effective in themselves, but special attention is still needed for a small number of people. This part of the population may not be applicable to general rule analysis.

Question 10 The price of recommended product

What do you think of the price of the recommended products of the e-commerce platform?


Figure 12. The price of recommended product

Price is the main factor affecting consumer desire. The 10th question is intended to understand whether the price of a recommended product after big data analysis conforms to the logic of the analysis itself. Also understand the attractiveness of these products to the recommended person. According to the survey results, more than half of users said the price after data analysis was attractive. But still about 32 percent of users said some or all the products were unattractive. This means that the analysis of the purchasing power of this group of people has been biased, the analysis does not have a clear understanding of the purchasing power of this group of people, giving the wrong product recommendations.

*Question 11 The other ways of online-shopping experience*
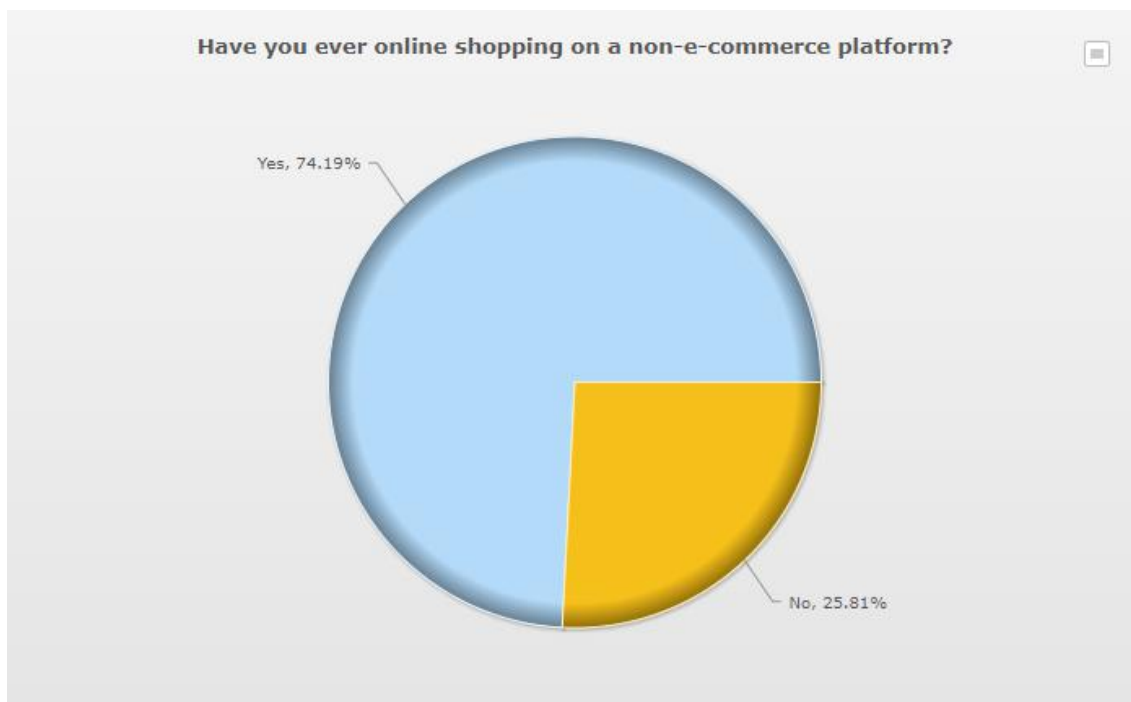
Figure 13. The other ways of online-shopping experience

The question is intended to understand the size of non-e-commerce online stores on the market. According to the results, 74.19% of users have used non-e-commerce platform for online shopping experience. Most of these companies exist through direct marketing on the official website of suppliers, as well as through third-party non-e-commerce platforms. At present, e-commerce platform only occupies the major share of the online shopping market, the market is still composed of sufficient challengers. Analysing vendor needs and data is also part of overall big data.

Question 14 Whether the platform affects the user's consumption decisions
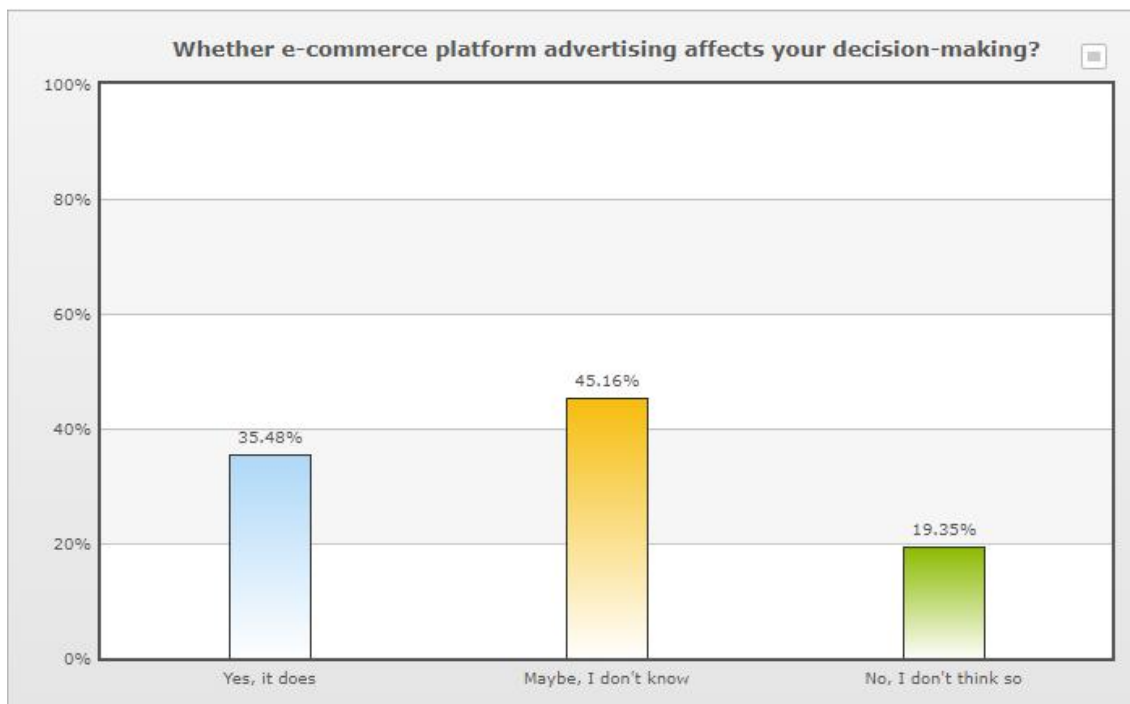
Figure 14. Whether the platform affects the user's consumption decisions

The purpose of this question is to understand the impact of e-commerce platforms on consumer decision-making after big data analytics. By understanding the actual impact of e-commerce's recommended advertising on consumers, we can judge the accuracy and power of big data analytics. According to the results, 35.48 percent of users made it clear that they were affected by e-commerce platforms leading to changes in purchasing decisions, and 45.16 percent said they were unsure whether they were affected. Only 19.35 users made it clear that they were not affected. These data show that big data analysis is effective for consumer behavioural judgment, but the judgment model is based on the usual population and should be customized for a small number of special groups of people.

Question 15 The attitude of users' data gets used by e commerce platforms
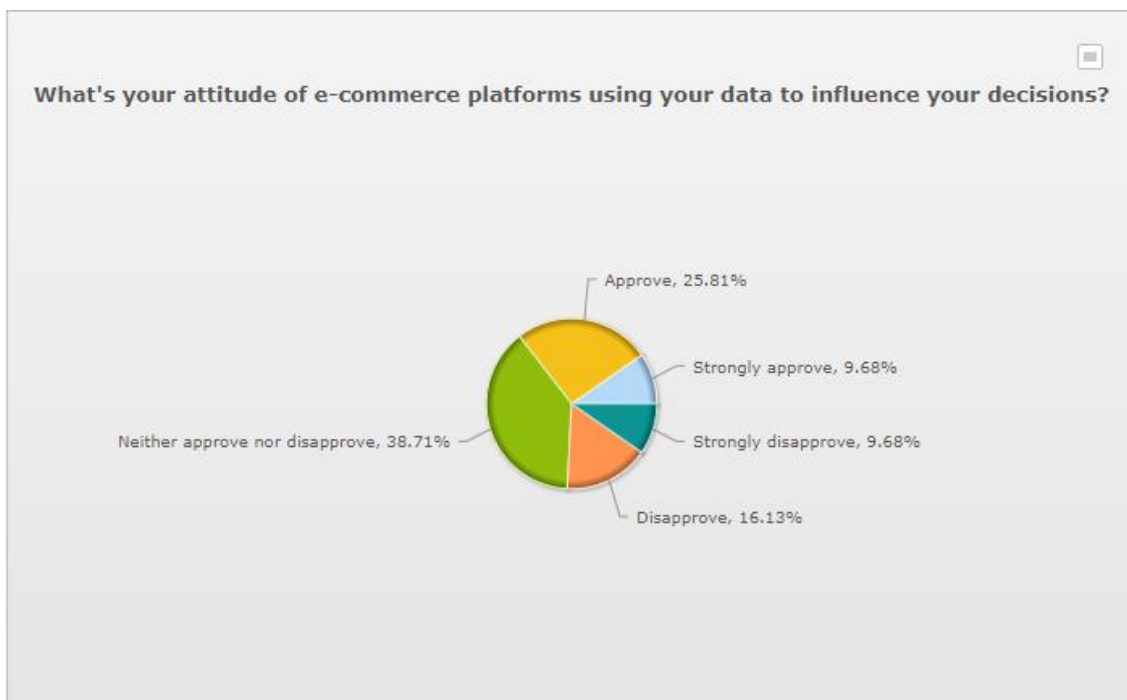
Figure 15. The attitude of users' data gets used by e commerce platforms

The question is about customers' attitudes toward e-commerce platforms using their data to analyse them. At present, according to the results, only 35.49 percent of users support the e-commerce platform's use of personal information for analysis, 38.71 percent of users only said they did not object to the use of behaviour. About 25 percent of the remaining users explicitly objected to the use of personal information by e-commerce platforms. These results mean that the biggest problem facing big data is the legitimacy of the source of the data. The use of data that lacks user authorization is a major risk initiative that can lead to a crisis of confidence. Companies should explain more and gain user understanding.

7   CONCLUSIONS

7.1   Research findings and conclusion

According to theoretical research and empirical analysis, it can be judged that big data analysis has a very significant impact on enterprises, especially e-commerce enterprises, in the development of consumer behaviour orientation. And companies are indeed using data collection and data analytics to guide consumer behaviour. However, enterprises in the promotion of e-commerce platform at the same time face many negative hidden dangers. Examples are competition between industries and the maintenance of brand reputation. From a holistic research perspective, we can see that companies continue to expand their competitiveness through big data as a tool. Attracting users at the same time enterprises are also carrying out industry-wide integration process. How to use big data correctly or efficiently to guide consumer behaviour is very important. This is also the main issue discussed in this article. This is explained in more detail below.

The development of information computing enables e-commerce companies to get more information and feedback from a variety of channels, and their business activities are accompanied by information interaction and updates. At the same time, sensitive information and the degree of public trust and other factors limit the further development of e-commerce companies. Therefore, e-commerce companies should adjust their strategies in time to achieve their goals. When an enterprise plans to develop an individual marketing campaign through big data analytics, it can consider the following questions:

Firstly, further subdivide the company's target groups and strengthen the service complements the services of a small number of special groups. Different e-commerce companies often have different audiences, but the audience itself can be transformed. Because the needs of the audience often have different factors affected by the demand changes and interests. Big data analytics can help e-commerce companies differentiate these groups to some extent, while consumer needs can be innovated and expanded through analytics. Therefore, e-commerce companies should be clear about their own positioning and needs at the same time, for the development of users to provide more support. In the fierce market competition, e-commerce companies need to understand and meet the real needs of the audience, and according to the audience's feedback can

create new consumer demand. If e-commerce companies only conservatively serve the current audience, the company's market competitiveness will continue to weaken. E-commerce companies must provide quality services to consumers from a consumer perspective.

Secondly, Strengthen engagement and communication with company's audience. The biggest advantage of e-commerce over traditional commerce is the convenience of information. E-commerce enterprises should integrate the advantages of information exchange, proactive information collection and feedback, while paying attention to the timely and accurate information. At the same time, e-commerce enterprises must protect their own product quality, suppliers and transaction process supervision and management to maintain the credibility of enterprises. In addition to focusing on user interaction, you must also focus on the needs and opinions of upstream and downstream components such as vendors. The marketing behaviour of the platform often requires the support of suppliers, logistics, warehousing and so on. At the same time, e-commerce enterprises must standardize the behaviour and norms in the information process, ensure the sustainable development of information collection, and attach importance to and develop business strategies from a strategic point of view.

Thirdly, try to guide new consumer behaviour while meeting the current needs of consumers. E-commerce enterprises should make full use of big data analysis, use their own high-quality products and services to participate in the competition. At the same time actively collect and analyse the advantages and development trends of competitors, do a good job in marketing competitive strategy preparation.

To be brief, e-commerce companies must integrate their own development and use the advantages of information channels to achieve the integration of corporate marketing strategies. Through good service quality and brand attractiveness to achieve good marketing results. The innovation of information technology has not only changed the traditional way of trading, but also changed the relationship between consumers and enterprises to some extent. Under the new marketing model, consumers are no longer passively accepting the company's information, but expect more interaction. The current transaction is no longer a mere buying and selling relationship, but an open and sustainable development process. Only by making better use of information and other

means to cope with the change of consumption situation, and even try to use the information resources to guide and change consumption behaviour, cultivate consumption habits, can further expand marketing, so that they are different from the traditional market competition.

7.2 Reliability of result

Reliability is a method of evaluating the quality of data collection processes and end results. For the whole study to be effective and reliable, the complex measurement procedure itself must be effective. (William M.K. Trochim)

The research and study of this thesis mainly includes 2 parts, the first part of the basic theory collection and research work. The second part is the research and study of empirical companies. The main body of the theory is e-commerce and consumption behaviour, and the author also makes an in-depth study of the factors of linking the two. Empirical learning is mainly the research and analysis of case e-commerce platform company. To this end, the authors used questionnaire analysis and interviews with relevant business participants to collect data.

In the origin of resources, the author identifies and selects the literature that best fits the viewpoint of this paper through a large collection of literature. All resources come from official, authority literature, published books and periodicals, etc. The data collected in the empirical analysis came from the case company's users and business participants, including employees and management. All these have effectively improved the authenticity and validity of the research results in this paper.

8 EXPANSION PLANS

8.1 Suggestions for case company

The empirical analysis part of this paper mainly focuses on Alibaba Group's e-commerce enterprises as the object of analysis, to investigate the opinions and feedback of its users on e-commerce big data marketing. This includes in-depth interviews with relevant practitioners in management and operations. Based on the specific feedback data analysis, according to the market situation facing the case company, the following feasible strategies are proposed:

Firstly, general brick-and-mortar stores are mainly received by a fixed group of customers, for this category of customer brick-and-mortar enterprises will take a targeted form of sales. However, compared with the sales model of brick-and-mortar stores, enterprises in the e-commerce environment are more likely to switch to the sales of their own goods. E-commerce platform is facing consumers with different characteristics and needs, the company can use the big data survey, analysis of different groups of purchasing needs, and then provide targeted consumption programs, to take a variety of sales forms, in order to truly meet the actual needs of different consumer groups, improve the sales rate of online products, increase the economic benefits of enterprises.

Secondly, with the improvement of China's economic level and the increase of residents' income level, consumers who can basically shop through e-commerce platforms have been satisfied with their basic needs in their own lives, and they will pay more attention to the pursuit of quality of life. For consumers today's commodity market, a wide range of products, many similar merchants to sell goods to meet their own needs, so they will pay more attention to the service experience in this shop. In view of this, the e-commerce platform must pay more attention to the psychology and feelings of consumers, improve the platform's consulting services and after-sales service system, and the relevant staff training, so that staff can answer all consumers' reasonable questions in a good manner, to optimize the actual service experience of consumers, is conducive to improving the sales rate of merchant goods, the future sustainable development of merchants is of great significance.

8.2 Possibility for future development

First of all, the research object of this paper is Alibaba Group, which has certain regional limitations, that is, the results of the study cannot completely cover the overall Chinese consumer market user characteristics and market characteristics. However, because of Alibaba Group's size and market occupancy advantages, it has sufficient reference value as a case.

At present, the number of enterprises involved in the e-commerce industry is increasing, the competition in the industry is becoming increasingly fierce, and in the electronic environment, the development of enterprises and consumer choices are closely linked. Therefore, enterprises must do a good job of consumer psychology and consumer behaviour research, according to market trends and consumers' actual needs to carry out production and operation, to avoid the huge cost losses caused by product stagnation, is conducive to optimizing the competitive advantage of enterprises in the industry market. In the fierce competition in the market to obtain more advantages, we must understand the reasons for different buyers' consumption behaviour, take a variety of sales forms, optimize the consumer's service experience, to ensure the long-term and stable development of enterprises.

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APPENDICES

APPENDIX 1. Questionnaire

Thesis Survey:Influence of E-commerce Innovation on consumer behavior in China. Case: Alibaba Group

Hi,

My name is Zhirong Deng, I am international business student of Vaasa University of Applied Sciences, Finland.

I am conducting research on the impact of e-commerce on consumer behavior, using Alibaba and its e-commerce platform as case companies.

This questionnaire will only be used for the questionnaire survey of my final graduation thesis.

I sincerely thank you for the minutes you take to answer my questionnaire.

The survey link is below.

https://www.smartsurvey.co.uk/s/HL3TX2/

With the highest respect and appreciate,

Thank you very much!

Zhirong Deng

1. Gender

○ Male

○ Female

○ Prefer not to say

○ Other

2. Age

○ 17 or younger

○ 18-20

○ 21-29

○ 30-39

○ 40-49

○ 50-59

○ 60 or older

3. How do you know Alibaba Group(Taobao.com, Alibaba.com,Aliexprese or other e-commerce platform)?

☐ Friends, family or other relationship

☐ Social media (website,TV, phone app)

☐ Magazine

☐ Mouth chat.

☐ In real store.

☐ I don't know Alibaba, but i know others

4. How about your first experience using e-commerce platform.

○ Very dissatisfied

○ Dissatisfied

○ Neutral

○ Satisfied

○ Very satisfied

5. Will you follow the e-commerce platform to provide your proprietary information?

○ Definitely would

○ Probably would

○ Probably would not

○ Definitely would not

○ I don't know

6. How often do your consumption on the Internet?

○ Every day

○ A few times a week

○ About once a week

○ A few times a month

○ Once a month

○ Less than once a month

7. How do you enter e-commerce websites, and how often.

	Enter the URL of website.(e.g press xxx.com)	Download the App then use it	Click the link when using other software	Ad recommendations	Unwittingly click	I don't know
Every day	☐	☐	☐	☐	☐	☐
A few times a week	☐	☐	☐	☐	☐	☐
About once a week	☐	☐	☐	☐	☐	☐
A few times a month	☐	☐	☐	☐	☐	☐
Once a month	☐	☐	☐	☐	☐	☐
Less than once a month	☐	☐	☐	☐	☐	☐

8. Are you satisfied with the e-commerce platform to make personalized recommendations to you?

○ Very dissatisfied

○ Dissatisfied

○ Neutral

○ Satisfied

○ Very satisfied

9. What do you think about the recommended products?

☐ It's all I need

☐ It's interesting

☐ I want to try to buy it

☐ Useless, but I can take a look

☐ I don't need them

10. What do you think of the price of the recommended products of the e-commerce platform?

○ Extremely friendly

○ Very friendly

○ Somewhat friendly

○ Not so friendly

○ Not at all friendly

11. Have you ever online shopping on a non-e-commerce platform?

○ Yes

○ No

12. What do you think of the e-commerce platform's shopping experience compared to other online shopping experiences?

◯ Much better

◯ Better

◯ About the same

◯ Worse

◯ Much worse

13. Are you giving feedback or reading feedback from other users in the following ways?

	On their platform after purchase	On forums or blogs	On their E-mail/ Letter	On telephone communication
Give feedback	☐	☐	☐	☐
Read feedback	☐	☐	☐	☐
None of them	☐	☐	☐	☐

14. Whether e-commerce platform advertising affects your decision-making?

◯ Yes, it does

◯ Maybe, I don't know

◯ No, I don't think so

15. What's your attitude of e-commerce platforms using your data to influence your decisions?

◯ Strongly approve

◯ Approve

◯ Neither approve nor disapprove

◯ Disapprove

◯ Strongly disapprove

16. Do you have any feedback or suggestions on the e-commerce platform?

APPENDIX 2. Interview Questions

1. *What are the main means by which the company collects user data legally and reasonably?*

2. *Has data analytics and cloud computing contributed significantly to the business promotion of e-commerce platforms? In what ways.*

3. *Are there any difficulties and challenges in using analysed data to promote and guide consumers? If so, how did you solve it?*

4. *What do you think is your company's biggest difficulty in operating and developing an e-commerce platform?*

5. *What do you think are your strengths over other companies in the same industry?*

6. *Do you collect customer feedback and adjust based on it?*

7. *Many small and medium-sized businesses now plan to leverage big data for cloud computing and analytics to support their own e-commerce. Based on the current situation in the Chinese market and the experience of e-commerce platform, do you have any suggestions for these companies?*