

Research on Strategic Development of Live Broadcast Industry in the Context of Internet

-- A Case Study of Douyin

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ABSTRACT

Douyin is already in the leading position in the short video industry, and its reason for further introducing the live broadcast function is a problem worth pondering. Based on the live broadcast field, this paper uses the SWOT analysis method to study the advantages and disadvantages, opportunities, and challenges of the short video Douyin's introduction of live broadcasting. Douyin has been able to meet the needs of the public and promote the self-realization of users. The recommendation mechanism of the algorithm used in the early stage of the Douyin development and the extensive user community also promoted the Douyin into the live broadcast market. However, the over-reliance of the Douyin on the algorithm recommendation mechanism in the live broadcast field leads to audit and regulatory loopholes. The regulatory problem is also a problem facing the Douyin industry. In addition, this paper studies the overall environment of the live broadcasting industry. The live broadcast of live Douyin is facing fierce competition from Taobao. Douyin is more important in its own social responsibility and must constantly improve its regulatory mechanism under the guidance and supervision of national policies. Overall, although Douyin is not a pioneer in the live broadcasting industry, its advantages in introducing live broadcasting functions remain prominent.

Keywords: Douyin; Live broadcast, SWOT,

1. INTRODUCTION

The main object of this paper is Douyin. In the top five short video platforms in 2021, Douyin ranks first in the industry with a 45.2% share as the leading player in the short video industry. Meanwhile, the live broadcast industry, which is closely related to the short video industry, has been developing rapidly. As a verified way of realization, live broadcast has also promoted the start to open live broadcasting in February 2018. As a space for one person, Douyin wants to get a place in the new live industry. It's not easy to get a place in the live broadcast industry. The competition in the live broadcasting industry is intensifying. If Douyin wants to achieve "cross border" successfully, it must understand its inherent traffic advantages and integrate the short video and live broadcast skills to develop better so that the accumulated flow basis will be realized. Aiming at the Douyin, this article makes a concrete explanation of the above advantages and disadvantages, which is of reference significance for the combination of short video industry and live broadcast industry.

2. LITERATURE REVIEW

2.1. Foreign research literature

In his book platform revolution, Marshall Elstein pointed out that "the platform is swallowing the world." The platform-oriented economic reform has created great value for society and business institutions, including creating wealth, growth, and meeting human needs. At the same time, the criteria of success and failure have been redefined [2]. In his view, the platform plays a vital role in how companies subvert traditional companies, reverse the market, change employment, redefine traditional industries, establish new business rules and develop the economy.

2.2. Domestic literature research

Live e-commerce is a kind of commercial advertising and sales activity. As the e-commerce system has matured in China, the user scale has gradually reached the ceiling of Internet users, and the traffic acquisition cost is becoming higher and higher. The "live + e-commerce"

model has become the next outlet of the e-commerce industry.

According to Fan Yaolin's "The reasons, realistic problems and optimization paths of the development of the live broadcast economy," the live broadcast economy is a new economic form composed of "Internet live + economy." The new media as a new media is a new type of media derived from the simultaneous interpreting of the new network technology and the traditional media. It contains many types. With the help of Internet technology, network new media have realized the transformation from traditional to modern. At the same time, it has achieved the goal of two-way interaction in the process of information dissemination, effectively applied information technology, and organically combined information technology and media, making the ways of information dissemination more diverse and more extensive [1]. Similarly, Xiaowen also mentioned in "Digital economy promotes development, brand live broadcast promotes image": digital economy is an important force leading a new round of economic reform and has become a new growth point of economic development. As an integrated innovation of multiple business formats, live e-commerce realizes the reconstruction of the relationship between "people, goods, and field" and is an effective way to stimulate market potential and form new consumption [8].

According to the review of the above relevant literature, foreign literature clarifies the importance of platform reform and innovation and provides a theoretical basis. However, as the live broadcasting industry is a rapidly growing industry in China, it is more convenient for domestic scholars to carry out industry development analysis based on the data resources of the domestic live broadcasting industry, which further explains the close relationship between internet live broadcasting and economy.

3. DATA AND METHOD

3.1. Data

According to "Short video platform most frequently used by Chinese short video users in 2021", the short video platform TOP5 used by short video users in China in 2021" latest data show that the 45.2% of the tremble is the top of the list, and it is also the leader of short video platform: 2.5 times of "KUAISHOU " (17.90%)occupies an important position in the short video industry. Other short video platforms, such as Bilibili, XiGua video and WeiShi, account for 13%, 4.3% and 4% respectively[9]. This data is sufficient to prove that the Douyin has a strong platform advantage, traffic infrastructure, which is the advantage and reason of its introduction Douyin function.

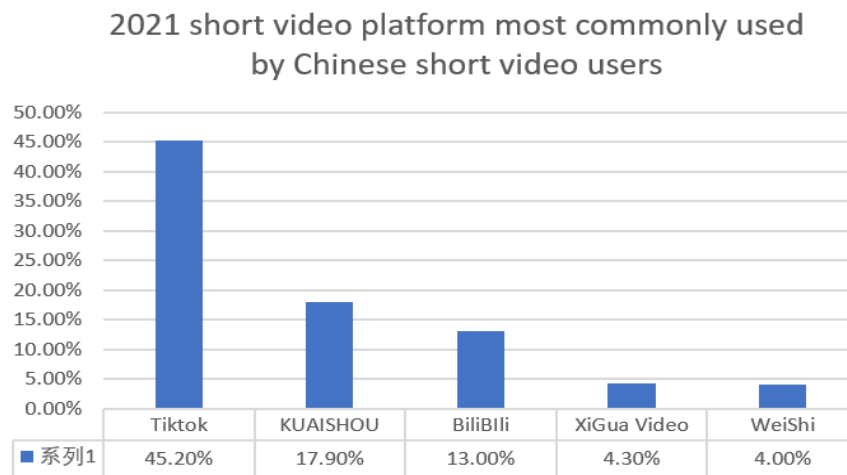


Figure 1. 2021 short video platform most commonly used by Chinese short video users

3.1.1. Understand the development process of the live broadcasting industry with data

In March 2016, mushroom street, as the pioneer of live e-commerce, took the lead in launching the video live broadcast function in the whole industry. On May 6, 2020, according to the people's daily, in the first quarter, the operation of the national online retail market was basically stable, and the "home economy" became a hot spot in the market. According to the big data monitoring

of the Ministry of Commerce, there were more than 4 million live e-commerce broadcasts in the first quarter. By June 2020, the number of users of China's e-commerce live broadcast, short video, and online shopping had increased by more than 5% compared with March. The number of e-commerce live broadcast users had reached 309 million, an increase of 44.3 million compared with March 2020, with a scale growth rate of 16.7%, becoming the fastest-growing personal Internet application in the first half of the year.

According to the development process of short distance video platform broadcast business from 2018 to 2020, we can say that the Douyin is not a pioneer in the live broadcast industry, nor a new entry to the industry.

Douyin opened the official opening of live broadcasting in February 2018 through the continuous introduction of new models and another cooperation approach to attract live users and compete with other platforms.

3.2. Method

SWOT analysis: Internal and External competition environment and situation analysis. It listed all the main

internal advantages, disadvantages, external opportunities, and threats that were closely related to the Douyin. Then it used the thought of system analysis to match all kinds of factors and analyzed the reason why the live broadcast function was introduced into it.

From the perspective of the user needs, they would carry out the "investigation on the audience use and satisfaction of the network Livestream platform." Under the premise of ensuring the random and objective selection of the sample, we get the reason why the users chose to watch the live stream. Then we analyze the psychological assessment of the users who were introduced into the live stream function.

2021 short video platform most commonly used by Chinese short video users

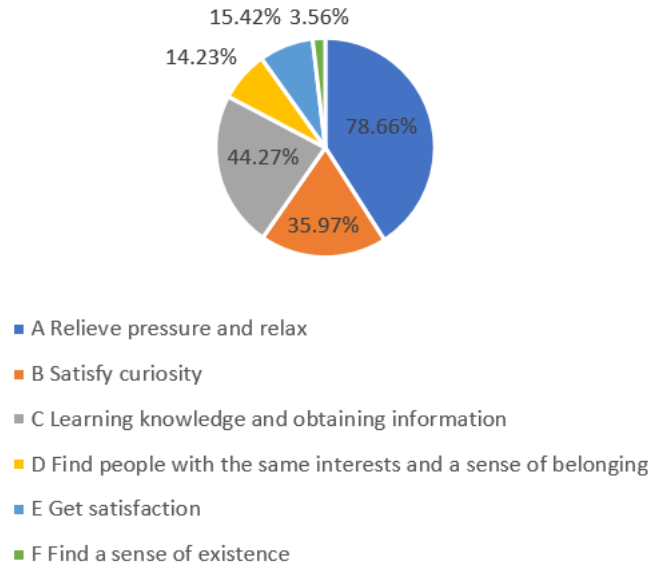


Figure 2 2021 short video platform most commonly used by Chinese short video users

4. RESULTS AND DISCUSSION

4.1. Strength

The introduction of live streaming functions meets the public demand. The demand of users is the fundamental reason for the rise and rapid development of the live streaming industry, and the analysis and investigation of user demand are of great significance to the development and optimization of the platform. This is also an important advantage of Donyin's introduction of live broadcasting. Based on Maslow's hierarchy of needs theory and the use and satisfy theory, we divide the satisfaction of the audience's needs into the satisfaction of emotional needs, the satisfaction of cognitive needs, and the satisfaction of communication needs. According to the results of the survey, the motivations and satisfactions of the audience are similar. In the use of a live webcast, the audience mainly obtains the satisfaction

of emotional needs, cognitive needs, and communication needs, which can be summed up as social needs, respect needs, and self-realization needs, is the user higher level of three-level requirements. Among them, the user's emotional needs are the most prominent among all the key factors, and the satisfaction of the audience's emotional needs is mainly embodied in: Changing the mood. According to the survey, 78.66% of the respondents said that using live webcasting can relieve their stress and relax their mood. In addition, on the basis that the respondents were allowed multiple choices, the proportion of learning and acquiring knowledge and meeting curiosity were 44.27% and 35.97% respectively. Among all the reasons for choosing to watch the live broadcast, the rates of finding people with the same interest, obtaining satisfaction and existence were 14.23%, 15.42% and 3.56% respectively. The proportion of these reasons is relatively low. Obviously, regarding the network live broadcast audience, the network live

broadcast most main function is transforms the mood, alleviates the pressure. Nowadays, the pace of human life is getting faster and faster, and the pressure is increasing day by day, accompanied by pressure, anxiety, physical and mental exhaustion. The audience through watching the network live broadcast program, released the pressure, eased the mood. Emotional resonance: Unlike other media, the audience of the live webcast can comment on the content of the live webcast at any time when they watch the live webcast, and the audience of the live webcast can also see the comments of other audiences. When the content of the live webcast is more exciting, the live webcast audience can directly express their admiration for the live broadcast and the program. At the same time, they can also see the praise of other audiences for the program, and the same between the live webcast audience, a common understanding, and view of the content of the live shows enhances communication, achieves an emotional resonance, and also helps users find a sense of community.

Broad user base.

The user base of Douyin has a wide industry distribution and is easy to combine with the development of live webcast, and has an advantage that no other live broadcast platform has. Douyin Operation Early, the user, presents the vertical growth situation. In 2017 and 2018, there were more than 200 million users. From June 2017 to June 2018, the number of devices installed with short video apps for Douyin increased from 22.575 million to 213.711 million, according to the short video industry data report from IUSER Tracker. The user growth rate of Douyin belongs to the state of rapid growth in the early, to the latter tend to slow down, from the point of view of the number of users, Douyin temporarily occupied the leading position in the short video industry. Douyin has precise research positioning on user interests: the millennials have a high preference for video games, electronics, and fashion. The post-95 generation has a high preference for video games, electronic products, and clothing, the post-90 generation has a high preference for video of movies and TV shows, mothers and babies, and gourmet food, and the post-80 generation has a high preference for video of cars, mothers, and babies, and gourmet food, after 75, there was a high preference for music, car, and dance, after 60 for music, dance and daily necessities, and before 60 for music, dance, and creativity. In the age of short national video, users of Douyin can find short videos of interest in Douyin from the middle-aged and old to the post-2000s and the post-2000s. [1] with the rapid development of the short video industry, various major officials have started to move into short video platforms one after another, such as CCTV News, news broadcast, People's Daily, CCTV, etc. . In addition, Douyin has become major clothing and cosmetics brands gathering and Xuan Hair, which introduced Douyin live features to lay a solid foundation.

Business model.

The creators of the voice can easily use the short video fans to accumulate live broadcasts and save the process of streaming from the 0 Douyin to the big anchor. The short video creators who have the fans' basic traffic are more easily and faster to do the live broadcasting industry. Douyin can get a large number of resident users through a short video, and then a live broadcast platform is set up in App. After having a large audience base, it gradually becomes a Douyin platform. The introduction of the Douyin into Douyin can promote the business realization process. As the headlines of today, the voice of Hua Dan is also loaded with Douyin's "corresponding" commercial indicators. Compared with more mature advertising realization, e-commerce realization is still in the exploratory stage, but extraordinary results have also been achieved. Amway Douyin sells Taobao's broken goods on sale, giving the aura of "Douyin" a "halo," and its potential for e-commerce can not be underestimated.

Advantages of Douyin algorithm recommendation

The advantage of Douyin Traffic is based on the recommendation function of its intelligent algorithm, which is difficult to copy by other companies, so it makes Douyin continuously competitive with large traffic. Douyin algorithm recommended exactly how Douyin official did not disclose, but related analysis summarized the general composition of the algorithm. After a short video is released, the video is usually subjected to a series of recommendation processes: STEP 1: double-checking, machine checking, and manual checking become the first step for the video content filtering algorithm. One of the key functions of the machine audit is to check whether there are any irregularities in the works and copywriting. If it is suspected that there are any irregularities, it will be intercepted by the machine, and manual attention will be prompted by floating yellow, red, etc. . Second, by extracting the images and keyframes from the video and matching them with a large number of existing works in the large database of Douyin, and making low-traffic recommendations for works with repetitive content, or health recommendation (visible only to fans, visible only to yourself). The manual reviews focused on three main sections: video titles, cover shots, and video keyframes. In view of the machine audit sifts out the suspected illegal work, as well as is easy to appear the illegal domain work, the Douyin auditor carries on the meticulous examination one by one. If the violation is determined, it will be based on the violation of the account to delete the video, right to decline notice, banned account, and other penalties.

The next step is **Cold Start**. **The dithering recommendation mechanism is the well-known information flow funnel algorithm, which is the core of the Toutiao algorithm. After approval, the first step is called cold start flow pool exposure. For example, if a user uploaded a video today, the work passed the double approval, the system will assign the user an**

initial pool of traffic: 200-300 online users (and possibly thousands of exposures). Whether you're a tuba or not, as long as you have the ability to produce quality content, you have a chance to compete with the tuba—step 3: data weighting. Douyin uses the data from the 1,000 exposures, combined with the user number score, to determine whether the user is being weighted, for example, the broadcast rate, like, attention, comments, retweets, retweets, visit depth, etc. . The video then goes into the recommendation pool, where it is exposed on a large scale, and once it's in the recommendation pool, the Crowd Tag is weakened. The above is the general process analysis recommended by the dithering algorithm.

4.2. Weakness

Douyin is too dependent on algorithm recommendation mechanism. Douyin relies on algorithmic distribution and is confident in the algorithm, trying to achieve "Hit-and-miss," that is, users, continue to be exposed to favorite video content. The algorithm recommendation mechanism is a double-edged sword. While technology brings good news, platforms should pay more attention to the negative effects of technology. [6] recommending relevant live content to users based on their interests does not necessarily lead to good feedback, and short videos and live shows differ widely in terms of duration and interaction, as well as the intent of the creators, people make their own choice when they choose to brush the double-click, that is, a large proportion of the population is more inclined to satisfy the demand brought by a short video, and the excessive recommendation of live content will make them feel bored. On the other hand, the algorithmic recommendation mechanism caters to the needs of users and allows them to constantly access their favorite video content, but the host of Douyin has a wide range of sources, making it difficult to guarantee authenticity and Operability of the live content. Heavy users of doublespeak selectively touch, filter, and believe in the reliability of content, seeing only what they want to see and hearing only what they want to hear, reducing their acceptance of different types of content. The minor user may take the anchor in the individual as the real world normal even blindly imitates the worship.

The live streaming industry is growing too fast and of poor quality. With the development of the social economy and the improvement of People's Living Standard, China's live broadcasting industry has great advantages and has become a new industry with huge consumption potential and good growth performance. The live broadcast industry occupies an important position in the national economy. In 2020, China's online live streaming subscribers will reach 550 million, with a growth rate of more than 9.2 percent, according to the report on China's live streaming of e-commerce 2020 released by the forward-looking industry research

institute in the first half of 2020.

In a better development environment, a large number of live broadcast platforms and webcasts have emerged, but at the same time, the platform is not in place to check the quality of the hosts and live broadcast content, and the quality of the hosts varies, live when the sale of products is mixed, through false propaganda will be authentic and fake sales, after-sales also difficult to protect. At the same time, the "Gatekeeper" is missing, the psychological bottom-line novelty. Compared with a short video, live streaming is more difficult to control and monitor. Algorithm recommendations focus on the capture of data and can not identify the value orientation of live content, which may not conform to the mainstream value orientation of content distributed to users. There is a lot of eye-catching live content on the dithering platform, including sexual innuendos, flaunting wealth, spoofing, and so on. Such videos tend to attract a lot of attention quickly, and such hosts generate a lot of traffic, either to satisfy users' curiosity or to stir up dissatisfaction among viewers, don't worry about the quality of the live content, as long as you're able to retweet it. Douyin platform, as a short video social software and live broadcast platform, should first face up to the existing problems from within and combine economic benefits with social benefits to form a virtuous circle of creative space and live broadcast environment can go far.

4.3. Opportunity

Digital Economy

The digital economy brings development advantages to the live broadcast industry. The digital economy has become the new driving force of the new era and is represented by live webcasts in all walks of Nothing in Common. The strong diffusion of the digital economy makes the traditional industries absorb the new technology of the digital economy, which urges the traditional industries to make corresponding innovations to adapt to the application of the new technology. That is, the digital economy has stimulated the innovation of the traditional industries through the diffusion effect. [7] to make communication faster and easier, but also to change the way people communicate with each other, which changes the way organizations communicate, thus encouraging enterprises and governments to strengthen management innovation, improving the efficiency of the organization operating under the new mode. With the advent of the digital age, the live broadcast industry has developed in full swing, changing people's way of life, and people are constantly integrating and adapting to new industry models. The network live broadcast to the different age section people's life influence is big, already is obvious to all. Therefore, the combination of the live broadcast industry and other industries, the formation of the live broadcast plus ecosystem, bringing a diversified market environment, naturally also accelerated the

economic development of society, the realization of the digital economy.

The rapid development of 5G technology

The arrival of the 5G era is a blessing for the internet industry, 5G's excellent performance will technically break the current network conditions for live broadcast restrictions, and the decline in its traffic price for live broadcast users to use 5G networks offers a real possibility. But 5G will break the network condition restriction that lives broadcast faces. 5G network is designed for the deficiency of 4G network and the new Internet application in the future and has a series of excellent performance. 5G network has the characteristics of high speed, large capacity, super reliability, and low time delay, among which the first three characteristics have a significant role in promoting live broadcast. In terms of speed, the transmission rate of 5G networks will reach 10-100 times that of 4G. Its user experience rate can reach 100M-1Gbps. The high speed of 5G mobile networks could solve the Cottonwood problem in Standard-definition television and HD live streaming. In terms of capacity, the maximum flow density of 5G is 10Tbps/km², 100 times that of 4G, and the maximum connection density is 10000000/km², 10 times that of 4G. [3] such a high capacity can ensure smooth use of live broadcast services in crowded areas such as sports venues, concerts, large-scale shopping, shopping venues, transportation hubs, etc. . In terms of reliability, 5G has taken a series of new technologies and dramatically improved the reliability of the network. The anti-interference ability of the network has been greatly improved. It can be used indoors, outdoors, and in high-speed moving vehicles, and the interference of electromagnetic waves and obstacles to the network signal has been solved, and the problem of interference between the signals of the users at close range. In addition to technical factors, the 5G network in the flow of fee changes will also have an important impact on the live broadcast industry. [4] while the bandwidth of the 5G network is greatly increased, the unit cost of traffic will also be greatly reduced, thus creating conditions for reducing the price of traffic.

4.4. Threat

4.4.1. Peer threat

Different short video platforms form a fiercely competitive situation. Taobao lives to be popular, KUAISHOU, site B has been launched live features. Wechat has also introduced video numbers, including live streaming. According to the data analysis of the forward-looking industry research institute, among the competitive echelons of China's direct-broadcast operators, according to the market scale, the competitive forms of China's direct-broadcast operators in 2020 can be divided into three echelons, the first echelon being the

Taobao live-broadcast platform, market share is the largest; the second echelon is KUAISHOU, Douyin short video platform; the third echelon is JD.com, Pinduoduo, Vipshop, and other platforms. Live e-commerce development early (2017-2019), in the first two competing echelons Taobao, KUAISHOU, and Douyin live transactions are showing steady growth trend. In 2019, the three live streaming platforms had deals worth 200 billion yuan, 150 billion yuan, and 40 billion yuan, respectively. In 2020, Taobao life and KUAISHOU, Douyin competition gap further widened, Taobao market share will be more than half, Douyin KUAISHOU market share is relatively low. Taobao is a mainstream shopping platform to occupy the inherent advantages of the platform. Douyin lives with goods and Taobao live platform compared to a larger gap.

4.4.2. Policy Threat

The related policy consummates unceasingly, has the supervisory function to the platform. 2021, the state Internet Information Office, the office of the National anti-pornography Working Group, the Ministry of Industry and Information Technology of the People's Republic of China, and other departments jointly issued the guiding opinions on strengthening the standardization and management of live internet broadcasting. Its main purpose is to strengthen the positive guidance and standard management of the network live broadcast industry, to standardize the network reward behavior, to upgrade the cultural taste of the network platform, and to promote the high-quality development of the network live broadcast industry[10]. Douyin, as a short video and live broadcast platform, has been recognized by countless users. Its shoulder social responsibility can not be ignored. Live content needs to be in line with mainstream values. The platform should implement the mainstream values into management, content production, algorithm recommendation, and other links, always bearing in mind that the transmission of positive social energy, the main social core values of short video content to increase recommendation, responsibility, and mission of creating a healthy and upward live broadcast environment. But the Douyin live broadcast supervisory mechanism has not developed to the mature stage because the platform supervises the loophole to cause bad consequences. Once touches the legal policy red line, further platform development will face an enormous challenge and a blow.

5. CONCLUSION

Compared with other live broadcasting platforms, Douyin enters the live industry relatively late. However, with the super entrance of short video, live Douyin broadcasting is somewhat special in terms of play compared with other live broadcasting platforms, but according to our previous analysis, the advantages of live Douyin broadcasting are also obvious. In the future, how

to make use of platform advantages and traffic base to continue to develop is particularly critical.

Live broadcasting is now clearly accepted by young people: more and more young people choose to host as their profession. At the same time, with the rise of entertainment wave, young users' demand for live broadcasting will be stronger and stronger. This also means that there are a large number of potential users to watch live broadcasts for Douyin, young people will be the main consumer in the future, and important opportunities for future Douyin are also in the Douyin live broadcasting.

Suggestions for Dither Platform

Content Upgrade

Live broadcasting is facing the trend of demand for high-quality content and the elimination of inferior content. How to create a live content upgrade is the key. Value the upgrade of live broadcast content, enrich live broadcast content, also become a powerful weapon for Douyin live broadcast. With the exploration of live content, its boundaries are expanding. If you don't pay attention to content creation and upgrade, you will lose the favor of these young users and be quickly eliminated.

Improvement of regulatory capacity

In order to promote the healthy development of the live broadcasting industry and purify the network live broadcasting environment, the State will further strengthen the supervision of the live broadcasting industry, with strict requirements. Network platforms strengthening the supervision of the live broadcasting industry will be the most important. How to grasp the host's evaluation and product quality supervision, and at the same time resist the related illegal and disciplines, violate industry ethics and other undesirable live broadcasting phenomena, will be the direction that needs special attention in the future.

REFERENCES

- [1] Fan Yaolin. (2021). Motivation, practical problems, and optimization path of direct broadcast economic development. *Productivity research* (09), 10-14 + 161. Doi: 10.19374/j.cnki.14-1145/f.2021.09.003
- [2] Marshall W. (2017, October). *Platform revolution*. Los Angeles: Academic Press.
- [3] Liang Wenjing. (2018, September). Development trend of 5g mobile communication and research points of some key technologies. *China new communications'* 115 (10), 10-11
- [4] Chi Jian, Gao Min, Li Rui, Liu Xufeng. (2018, May 31). 5g development trends and operators' Countermeasures. *Information and communication technology's*.
- [5] Case report on China's innovation live broadcast exploration in 2021. (2021, September 1) *Airy consulting*.
- [6] Relieve "algorithm anxiety" with mainstream values. (2018, July 20) *People's daily*.
- [7] Jing Wenjun, Sun Baowen. (2019). Digital economy promotes high-quality economic development: a theoretical analysis framework. *Economist* (02), 66-73. Doi: 10.16158/j.cnki.51-1312/f.2019.02.008
- [8] Xiaowen (2021, June 18). Digital economy promotes development, brand live broadcasting and shaping image. *China clothing daily*, 008
- [9] Top 5 short video platforms most commonly used by Chinese short video users in 2021 (2021, September 1) *Airy consulting*.
- [10] Jing qinlei & Zhang Hongfeng, Zhang Liyuan. (2021). Research on the construction of "live + e-commerce" multiple collaborative supervision model. *Journal of Shandong University of Finance and Economics* (06), 98-105.