The Relationship Between Bilibili and Its Users from the Standpoint of Metaverse

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Abstract: The video platform featured by the barrage, Bilibili, is a leading presenter in the current two-dimensional cultural community market. In the past ten years, Bilibili has been expanding its capital market under intense competition and rapid development, and now it is about to face a new industrial revolution. This article uses SWOT analysis and Porter's five forces model to study the current user relationship and discusses how will Bilibili develop with the influence of the reciprocal relationship with the Metaverse in the future. Finally, this article gives some feasible suggestions and predictions for Bilibili's future possible progress.

1. Introduction

With the continuous development of Internet technology, the penetration rate of video platforms is increasing, and China has become the world's largest digital society by June 2021. According to "The 48th China Statistical Report on Internet Development", Chinese Internet users have been exceeded one billion, and Bilibili has rated as the top ten Apps preferred by young Chinese users many times [1]. The user relationship of the video platform, Bilibili, is reciprocal, which means Bilibili and its users are a complement that could benefit each other by increasing user stickiness and frequency of interaction. Also, it could determine the core resources and influence the core competitiveness of the platform. The main competitors are iQIYI and Tencent. The former is a comprehensive video platform with rich film and television resources and user groups, while the latter cooperates with multiple films and television companies to maintain high-quality copyrights and exclusive variety shows. Bilibili needs to effectively improve its user relations to compete with others regarding such tremendous competitive pressure.

Huimin She (4th edition of Economic Daily News in 2021) mentioned the origin of the Metaverse concept that originated from the "Snow Crash" by American author Neal Stephenson in the year 1992. The book describes that humans will immerse in a digital world in the future and communicate with each other via figures online [2]. Avatar Technology explains the concept of the Metaverse that it is a specific virtual space for people to live, and everything in the Metaverse is digital, even the economic tools [3]. To further understand the basic construction of the Metaverse, blockchain technology is the foundation of the Metaverse economic system, and interactive technology uses AR, VR, and brain-computer interfaces to provide users with an immersive experience [4].

Bilibili is always involved in a competition and faces threats from other video platforms. Bilibili needs to face its problems and keep developing its advantages (e.g., the importance of maintaining user relationships) if it wants to have more significant achievements. In this article, the SWOT

analysis method maintains the characteristics of high user stickiness. In contrast, Porter's five forces model is used to analyze how Bilibili gains competitive advantages and positive influence by using the Metaverse concept.

2. The relationship between Bilibili with its users

2.1 The SWOT analysis of the relationship between Bilibili and its users in terms of the business model

The SWOT analysis analyzes that Bilibili, a leader of Chinese Anime& Manga& Game platforms, has strengths such as providing Danmaku function and exclusive content. However, the negative Danmaku will bring bad sides effects to Bilibili, which is one of the weaknesses of Bilibili. Bilibili has opportunities that the government gives support, and they introduce the virtual singers, which also brings the opportunity to Bilibili. Furthermore, Bilibili will face threats in the future. For instance, the displacement of the short videos and the lack of funds. According to the SWOT analysis, there are SO strategies that Bilibili can cooperate with the government to gain more video rights and raise its popularity. Also, the virtual singers play an essential role for Bilibili to realize Metaverse. Comes to the WO strategies, Bilibili can make more profits by developing virtual singers, and Bilibili can cooperate with the government to promote a positive climate in the platform.

Table 1. The relationship between Bilibili and the users

	S: -The first platform for Anime & Manga & Game groups. -The contents of the platform are rich and horizontally developed. -There is no Pre-roll before videos. -The Danmaku and interactive functions able the users to interact when they watch the videos. -The exclusive contents are provided only on Bilibili. -Personalized recommendations help customers to find contents they interested in.	W: -The stereotype of niche contents leads to fewer users. -The negative Danmaku affects user experience. -The quality of video irregular -Bilibili sets high entry barriers to users to be members.
O: -Cooperation with government departments makes contents more diverse. -Future Development of sharing economy -- Virtual singers	"SO"strategies: -Bilibili cooperates with government or other platforms to enrich platform content. -Bilibili continues to popularize virtual singers. -Bilibili makes personalized recommendations more accurate to users.	"WO" strategies: -Bilibili expands the contents to attract users from as many groups as possible -Bilibili focuses on the sharing economy - for example, developing virtual singers as a channel to make profit. -Bilibili cooperates with the government to promote positive community climate.
T: -The displacement of short videos threats Bilibili. -Content regulations and the invasions of "fan culture". -The profitability of Bilibili cannot support the technology investments to enforce Meta verse.	"ST" strategies: -Bilibili develops featured-original contents and purchase exclusive copyright s which short videos cannot provide. -Bilibili can sign with bloggers to improve user stickiness.	"WT" strategies: -Bilibili should support original videos, raise the threshold of video audit. -Bilibili should improve video quality to provide better viewing experiences. -Bilibili can lower the membership threshold and strive for more users

2.1.1 Advantages

Bilibili has a unique style and strong user stickiness. Bilibili is the first video website to use bullet screens in China. Users can take the form of bullet screen interaction to reduce loneliness [5]. "Barrage" originated from Japan's Niconico animation. Bilibili uses a bullet screen as a communication channel between users and video content. It can create value for users, enhance user engagement, and thus strengthen user stickiness.

Bilibili has a solid vertical influence, UGC began to transform into PUGC. The core application of Bilibili is users, UP masters, and content. UP masters create video content, content carries user entertainment, and users are consumers of the content. This triangle has become an excellent ecosystem. At present, Bilibili is transforming from UGC (User Generated Content) video production mode to PUGC (Professional User Generated Content), and more and more UP masters with professional knowledge are producing videos [6]. This transformation will clarify the boundaries of the interest pool, attract users with content, and increase users' reliance on UP masters.

Watch without advertisement, Bilibili's choice not to interrupt users' viewing has increased users' switching costs to a certain extent. However, advertising is also an essential source of profit for various industries. To increase profits, Bilibili optimized the advertising delivery while ensuring the user experience. According to Q1 of 2021, the advertising business revenue is 710 million yuan, increasing 234% (see Fig.1).

Bilibili can also give users precise, personalized recommendations. When users watch videos, Bilibili will capture their data. Over time, Bilibili will grasp the needs and preferences of different users. Then, it can effectively push to the homepage of the platform and the bottom of the video to arouse users' interest, which can effectively increase the number of users and the retention rate of the software.
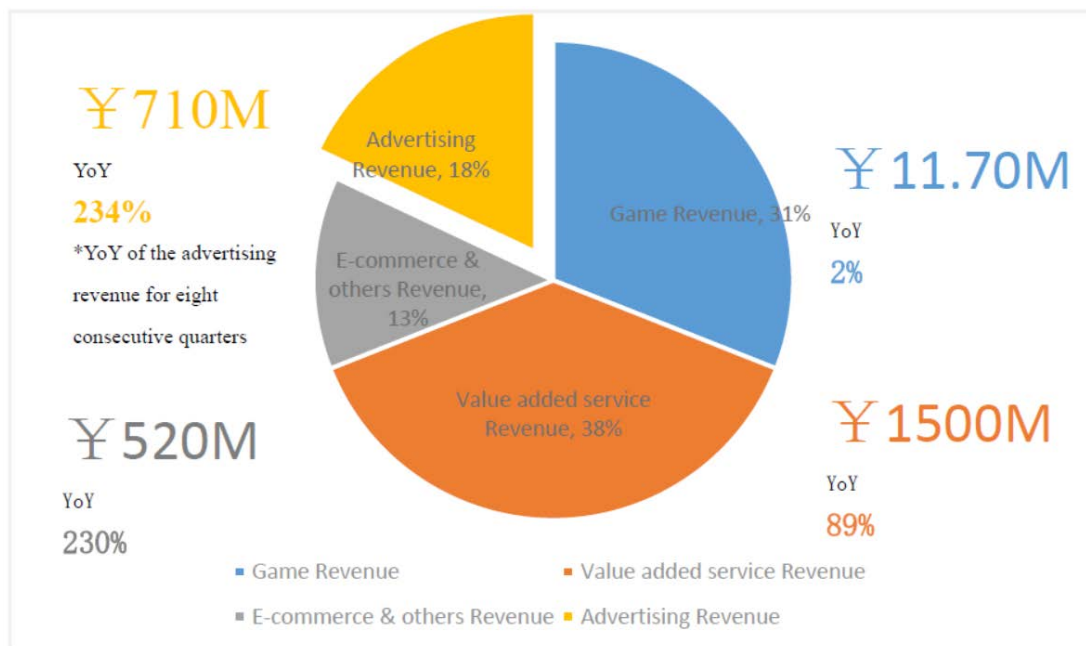

Figure 1. 2021Q1 Bilibili Financial Reports

(Source from: 36Kr)

2.1.2 Disadvantages

The user group of Bilibili is relatively single. They are young, and the audience is not comprehensive. Most users are attracted by Bilibili's animations, dramas, and games. On the other hand, the threshold for users to become full members is also relatively high. They need to answer 100 multiple-choice questions within the specified time and achieve a pass rate, and the coverage of these 100 multiple-choice questions is broad, so some users will give up the opportunity to become members. It is resulting in a decrease in the number of users.

The quality of the video content and barrage that Bilibili shows to the audience gradually decreases. In 2011, Bilibili uploaded about 110,000 videos per month, and in 2017, the number of videos uploaded per month increased to 11.62 million [7]. As the number of uploads increases, the quality gradually decreases. Firstly, Bilibili's video review pass rate is relatively high, and it has not been strictly supervised. Every user can publish videos on this platform, which leads to the complicated and repetitive content of Bilibili. Users will also try to use the same method as famous UP owners to obtain platform traffic, which eventually leads to a decline in video quality. In the early days of Bilibili, bullet screens were its most significant feature. Today, the quality of bullet screens is getting lower and lower. Once the opinions differ, it is easy to cause a crisis. Such low-quality bullet screens will cause discomfort to the audience, and the viewing effect will also be significantly affected.

2.1.3 Opportunities

In recent years, Bilibili has cooperated with more and more game makers, government agencies, and social groups to obtain a large amount of traffic and income. Game has been the primary source of revenue for Bilibili from 2018 to 2020 (see Fig.2). Although the proportion of games is declining year by year, it also means that Bilibili's profit model is developing in a diversified direction.
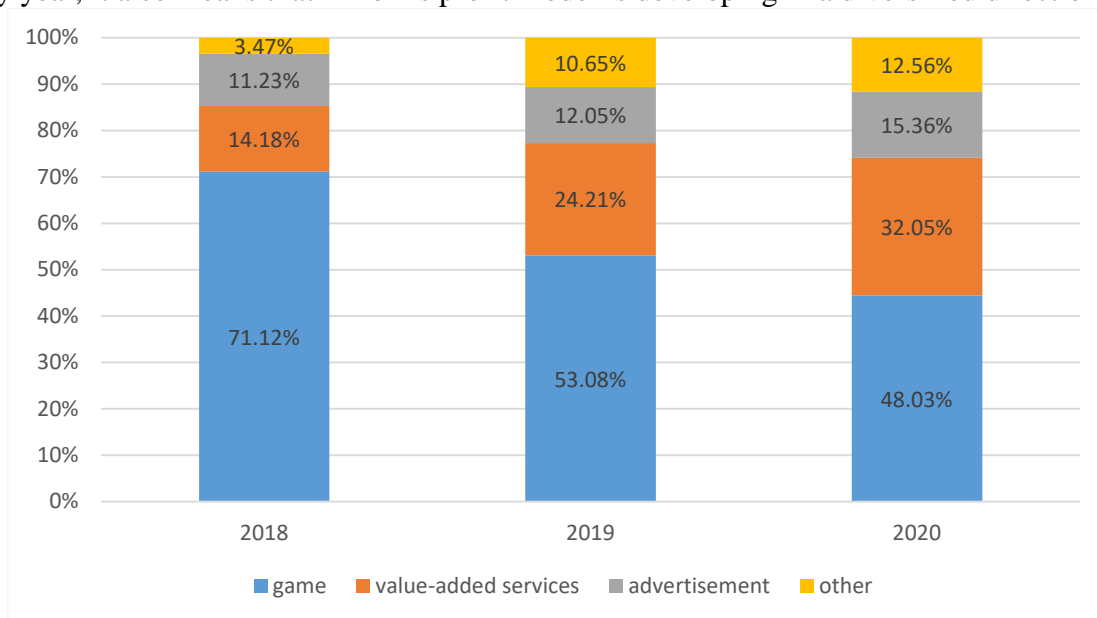

Figure 2. Income distribution of Bilibili from 2018 to 2020
(Source from: Bilibili's annual report from 2018 to 2020)

Currently, the Metaverse is a popular industry. If it spreads in the consumer field, applications and products based on the Metaverse framework will significantly improve the user experience. Now, Bilibili already has a lot of interactive and virtual content, such as interactive videos and virtual idols. These are currently limited by platforms and technologies that do not provide a perfect user experience. Once supported by robust network and AR/VR technologies, Bilibili will elevate these contents to a higher dimension.

2.1.4 Threats

In the external market, Bilibili faces the threat of short videos. Short videos suit contemporary people better, and people can watch more and richer content simultaneously. Platforms allow people to entertain and relax, and people no longer care if the video is meaningful. With the rise of the video industry, the competition among short, medium, and long video platforms has caused Bilibili to lose user stickiness.

At the same time, Bilibili also has internal factors that threaten its close relationship with users. First, "fan culture" is invading Bilibili. Sometimes, for example, when a user opens a particular video, he or she will see a bullet screen posted by another user and can post his or her thoughts on the screen.

There are also many fans of some UP owners who attack and abuse in the barrage of other UP owners. These phenomena undoubtedly significantly affect the viewing experience and make them disgusted, so they do not use Bilibili. Second, Bilibili's profitability may not be enough to support the Metaverse development. The integration of virtual and reality has extremely high requirements on technology, and the development of these technologies requires significant capital investment. Although Bilibili currently has established an excellent creator economy, community economy, virtual reality, and 3D are the basis for the realization of the Metaverse. In the future, if the company develops Metaverse earlier, Bilibili will inevitably lose competitiveness and user stickiness.

2.2 User Relationship Analysis in Bilibili Competitive Environment by Porter's Five Forces model

2.2.1 Intensity of current competition

In 2020, the scale of the users of the live broadcast platforms in China arrived at 236 million, maintaining a rapid growth to exceed 270 million in 2022[8]. With the expanding users, the E-sports live broadcast market will be more competitive.

In the E-sports live broadcast market, Huya, Douyin, Kuaishou are the main competitors of Bilibili. The users' preference index of Huya Live, Kuaishou, and Bilibili is 121.9, 133, and 124.2, respectively (see Fig.3). Besides, they have high TGI, which exceeds 100. This evidence reflects that users have a high interest in these three platforms. Therefore, platforms should adhere to their unique features to gain heavy traffic.
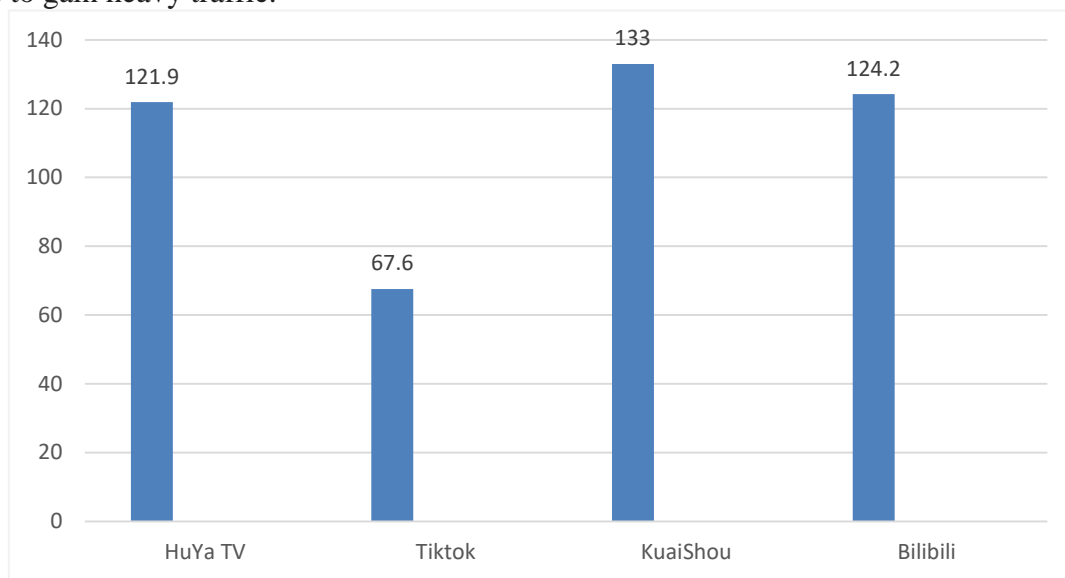

Figure 3. User Preference of E-sports Live Streaming Platforms of China in 2020
(Source from: iimedia)

2.2.2 Threat of potential competitors

Bilibili has transformed from a niche community into an online entertainment community covering diversified cultures rather than vertical developing Anime& Manga& Game culture. Under this background, Bilibili is now placed in the pan-entertainment industry, covering video games, live broadcasts, films, and anime. With the outbreak of COVID-19, people's demand for pan-entertainment has dramatically increased (see Fig.4). The social elements and sharing feelings as essential needs for people to eliminate aloneness. There are few barriers to entry in the pan-entertainment industry, and many market segments are covered. As the demand increases, competitors constantly enter the market, and the user stickiness of Bilibili will be affected. Bilibili's main business: mobile games, live broadcasting, and the comprehensive video industry are all under threat. For example, Tencent and NetEase, the giants of the pan-entertainment industry, launched LOL and Harry Potter mobile games in 2021, respectively. Moreover, the short video industry keeps

growing fast. Baidu, Tencent, and Alibaba all chose to enter. For instance, Tencent restarted Weishi and invested funds in Kuaishou. Baidu also launched Hakan[9]. With the increasing number of new entrants, the user stickiness of Bilibili will significantly decrease. Because users' time is constant, if they spend more time on other platforms, they will spend less time on Bilibili.
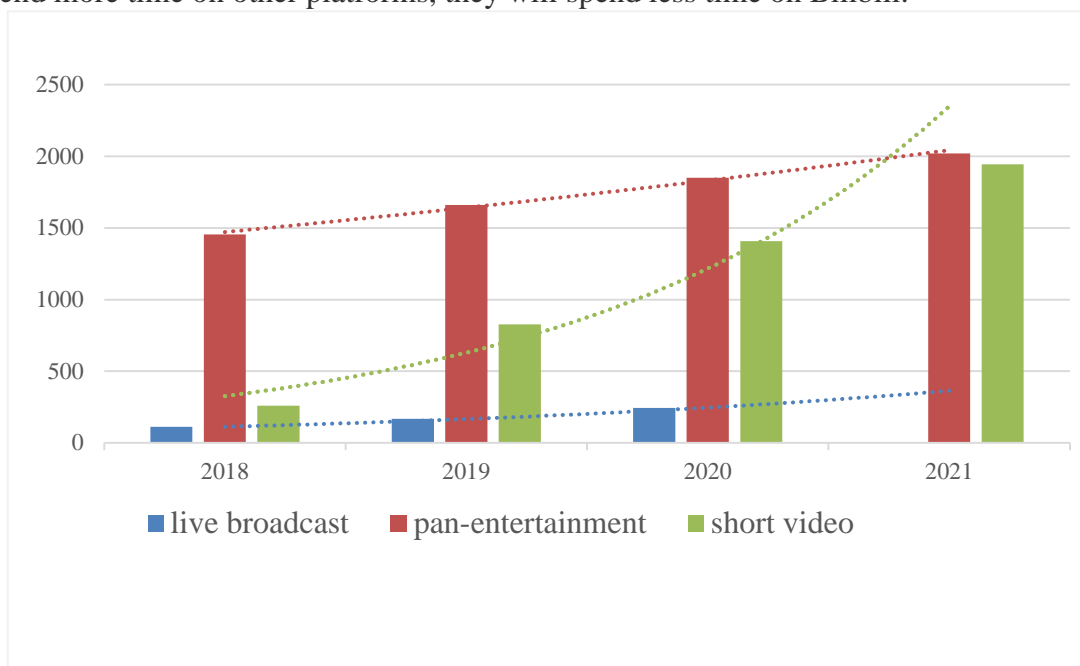

Figure 4. 2018-2021 China's pan-entertainment industry, live streaming, short video market size and growth rate
(Source from: iimedia)

2.2.3 Bargaining power of suppliers

As a comprehensive video platform covering many segments, Bilibili's s business scope has gradually expanded to games, live broadcasting, e-commerce, and other fields in recent years. Its suppliers mainly are game manufacturers, e-competitions, and contract anchors. From the financial report of Bilibili in the fourth quarter of 2020, it can be seen that the value-added business of Bilibili accounts for 33%, which has surpassed the game service (see Fig.5). The diversified revenue structure means Bilibili has more substantial bargaining power towards game manufacturers and other suppliers. In the future, to keep a relative advantage in the bargaining power of suppliers, Bilibili should keep the focus on increasing the research input, development of IP, and its derivatives. Plus, Bilibili should cultivate more outstanding uploaders and anchors to keep high-quality content production and build an electric business platform selling collections of Anime and games.
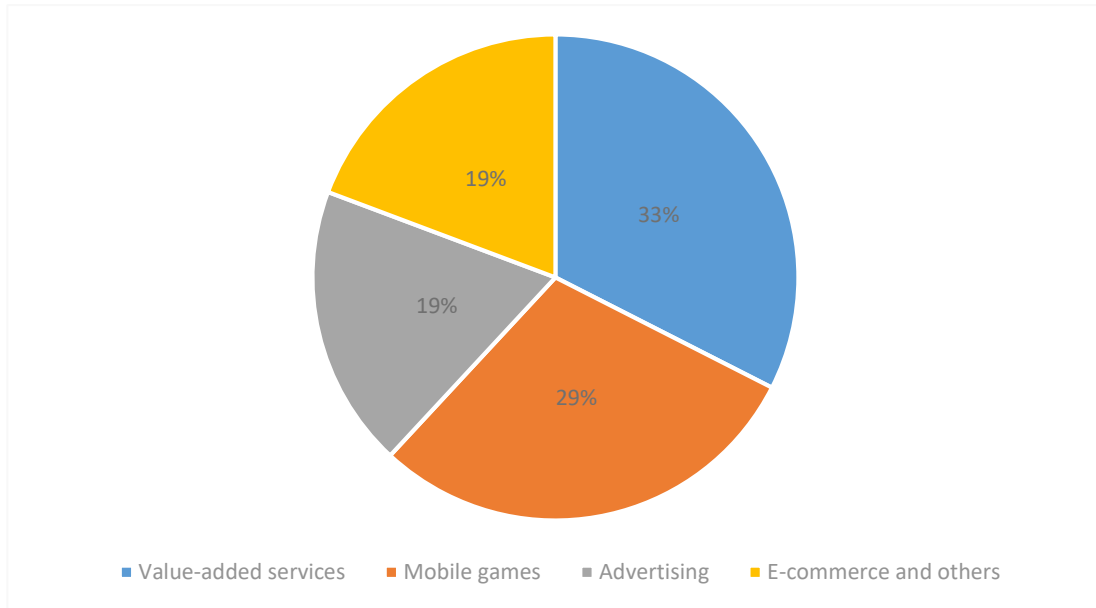
Figure 5. Income distribution of Bilibili in the fourth quarter of 2020
(Source from: Bilibili Inc. Announces 2020 Fourth Quarter and Fiscal Year Financial Results)

2.2.4. Bargaining power of customers

Bilibili users can not directly negotiate Bilibili membership prices in the new media industry. Therefore, the bargaining power of Bilibili users can be redefined as the users' dependence on the platform.

According to the data report of "App in the mobile Internet industry" in the third quarter of 2021, Bilibili has outstanding performances in both daily live/monthly active users (DAU/MAU) and per capita usage time, ranking on the top of the online video industry with 31.6% and 87.1 minutes respectively (see Fig.6). The PUGC content production mode of Bilibili increased user stickiness and accurately targeted more potential users. To sum up, the increasing monthly activity, daily usage duration, and high retention rate of Bilibili make the bargaining power of buyers relatively weak.
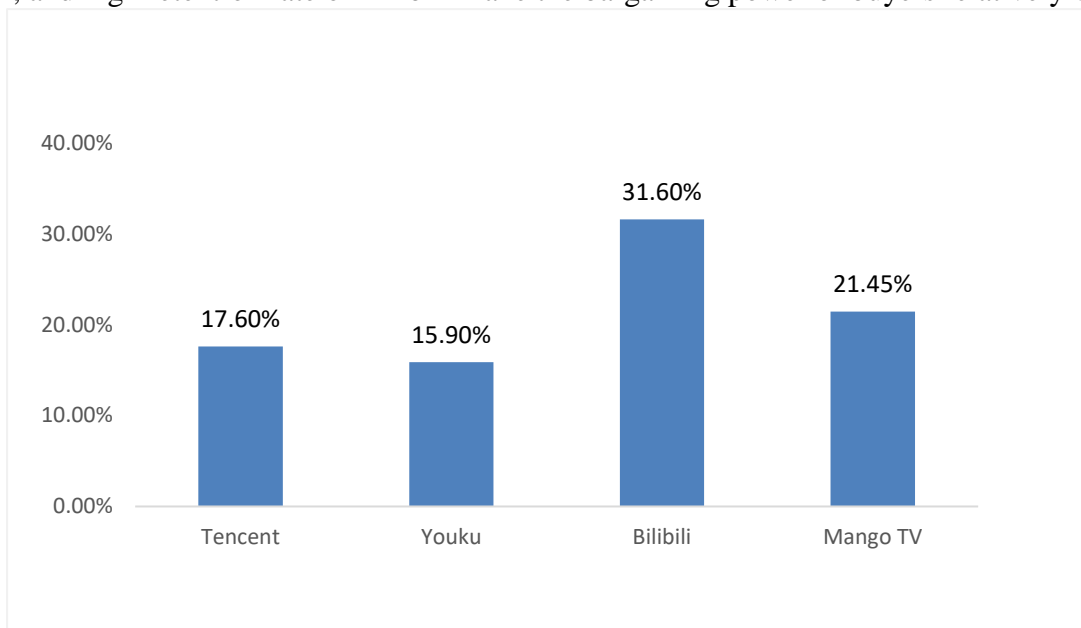

Figure 6. Head Platforms Monthly DAU/MAU [16]

2.2.5. Threats of substitute products

Short videos have been on the rise in recent years. Data shows that the size of China's short video market in 2020 has reached 140.83 billion [10]. Short videos have the characteristics of being faster and more diverse, while long videos sometimes make people feel exhausted and impatient. Bilibili mainly presents medium and long videos or live broadcasting so that short video platforms are more competitive than Bilibili and pose threats to Bilibili in the future. According to data from IIMedia, Tiktok is the most frequently used short video platform in China in 2020, accounting for 45.2%, followed by Kuaishou (see Fig.7). The short video segment operation of Bilibili is at a disadvantage and nearly 30% less than that of Tiktok.

Furthermore, Tiktok is now entering the global market, and it makes excellent achievements overseas, which speaks to the era of the short video. The essential advantages of short videos are short and precise video time, ultra-high user stickiness, and content that can quickly attract users. These three features are lacking in Bilibili. In order to eliminate this threat, Bilibili needs to face up to those shortcomings and makes innovations.
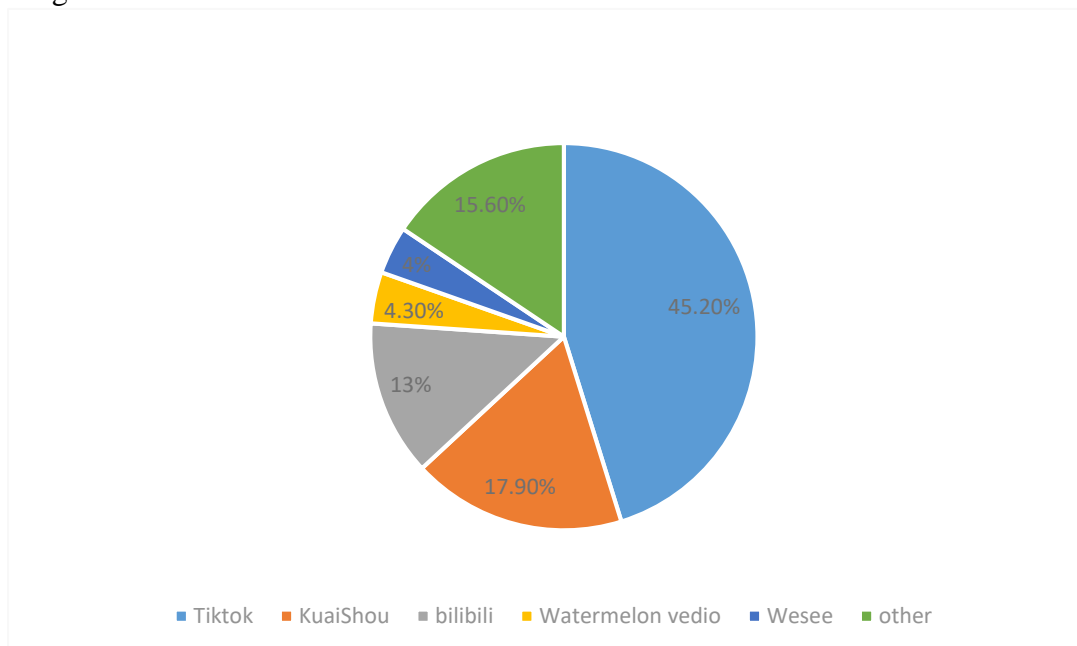

Figure 7. A survey of the most frequently used short video platform of China in 2020
(Source from: iimedia)

3. Recommendations for future development

3.1 Continue to develop virtual idols

In recent years, virtual idols are gradually favored by teenagers. Virtual idol has strong plasticity in the output of content and peripheral products, which can constantly develop new hot spots according to the trend of the times.[11]. According to the data of IIMedia, 48.9% of Chinese Internet users spend about the same amount of money on virtual idols and physical idols, 37.6% spend more money on virtual idols, and 13.5% choose to spend less money to support virtual idols (see Fig.8).

In this regard, Bilibili can launch virtual idols to participate in large-scale online activities to interact with users online, continue to sell peripheral commodities of virtual idols, and select virtual characters to carry out live broadcasting, mainly selling commodities with scientific and technological properties. If Bilibili can guarantee the high quality of the production of virtual idols, it will reap unexpected revenue and traffic trends.
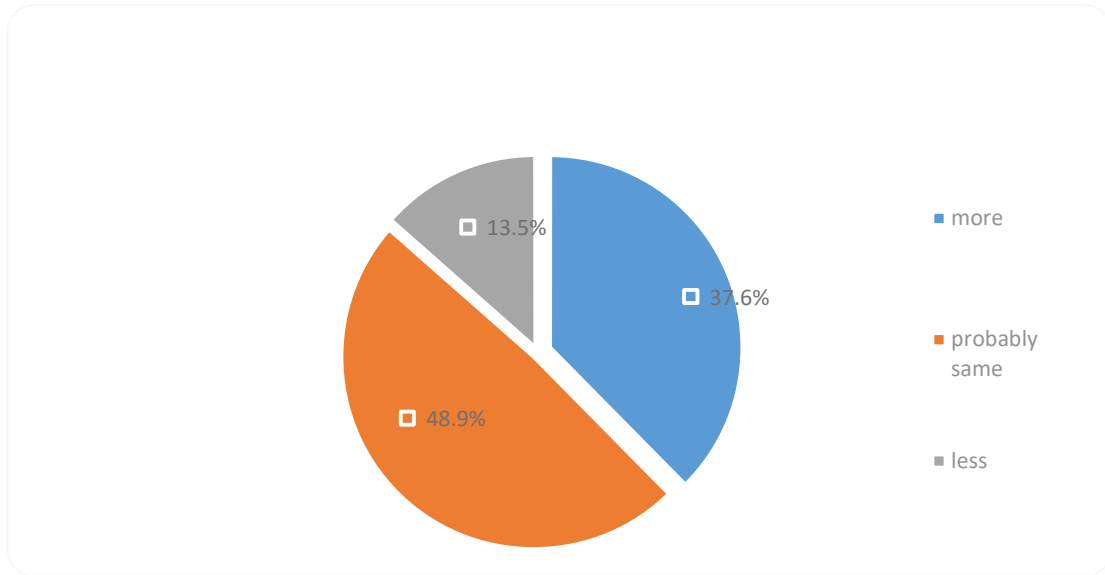
Figure 8. The amount spent on virtual idols and physical idols of China in 2021
(Source from: iimedia)

3.2 Sustainable development of technology

According to Bilibili's financial statement for the third quarter of 2021 displayed by Guohai Securities, Bilibili's current cost factors are mainly divided into four categories: Gainsharing, server, and bandwidth cost (the amount of data that can be transmitted online per unit of time), content cost, e-commerce, and others. The cost of server and bandwidth decreased year by year, dropping to 8% in the third quarter of 2021 (see Fig.9).
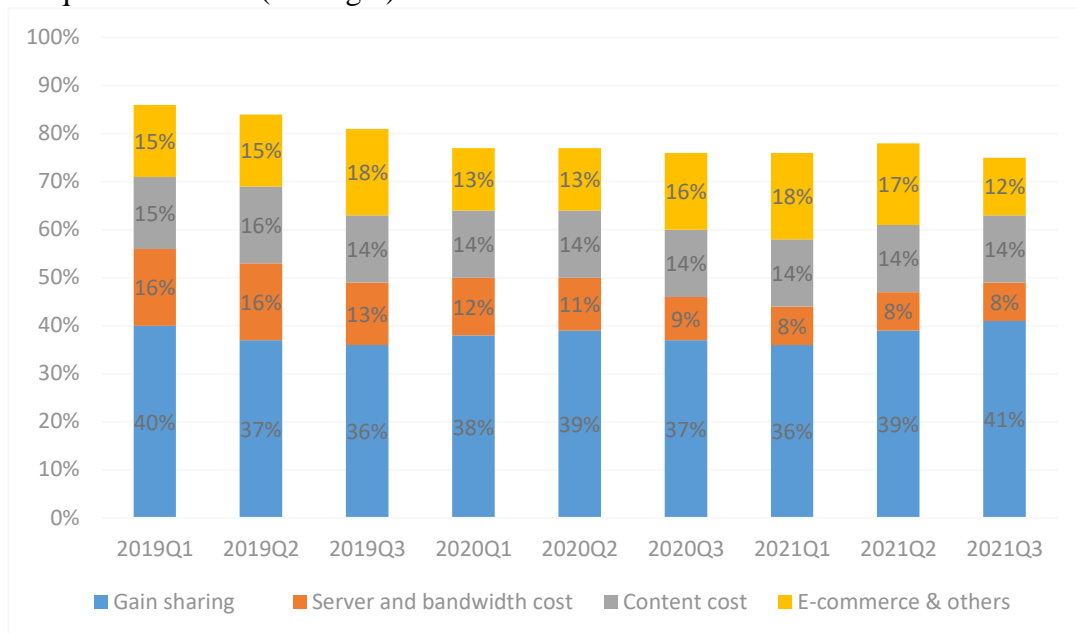

Figure 9. Revenue Ratio of Each Cost Factor (Excluding Equity Incentive Cost)
(Source from: Guohai Securities Co., Ltd Reports)

At present, many Chinese companies in the game, technology, and Internet industries see the bright development prospects of the meta-universe and start to invest in key technologies, especially blockchain technology, interactive technology, and artificial intelligence technology [4]. These key technologies require a lot of money, manpower, and time, but Bilibili 8% of server and bandwidth costs will make the technology progress at a slow rate. Bilibili needs to invest more money in technology to keep up with the Metaverse.

3.3 Enrich the platform content

Metaverse is a highly open and self-consistent economic form and consciousness system. Compared with products developed using edge computing, artificial intelligence, the Internet of Things, blockchain, big data, and other single technologies, Bilibili can bring users a more immersive experience by taking advantage of the flexibility of the vast information flow space Metaverse [12]. However, most of the videos on the Bilibili platform are two-dimensional planar videos with relatively poor immersion and less interaction with users, which is contrary to the Metaverse concept. Therefore, Bilibili should follow the development logic of the Metaverse and enrich the platform content. In technology, more video formats are supported and compatible with VR/AR devices. In terms of content, Bilibili should encourage video creators to increase interactive elements in videos, convey information to customers in the real world through video, image, sound, and text, elevate immersion, interactivity, engagement, and openness to a higher level, and integrate with the meta-universe to attract users. Bilibili can occupy more markets in the future network, digital and intelligent Internet development environment [13].

3.4 Improve video review efficiency

Bilibili does not have high requirements for the educational background of auditors, who work every other day, including night shifts, and have an average monthly salary of RMB 5,092, 25% lower than the average salary in China [14]. It can be seen that Bilibili auditors do not have high education, low salary, irregular working hours, and a huge workload. According to the feedback of the relevant staff, the auditor is not their long-term job consideration, which leads to the high mobility of the staff, and the new staff needs more time to adjust. The above reasons are the factors that affect audit efficiency. Therefore, Bilibili can appropriately raise wages to attract more applicants, reduce staff turnover, standardize unified auditing standards, and strengthen on-job training. Bilibili can develop software that uses artificial intelligence to recognize sensitive words and images and then run a second manual review of the video to avoid misjudgments to keep employees healthy. At present, the audit software used has an autoencoder neural network with voiceprint detection technology to effectively fuse multi-perspective and multi-mode feature information, such as Yidun [15]. It can reduce the workload and number of employees improve audit efficiency.

4. Conclusion

4.1 Key findings

By analyzing financial reports of Bilibili and the preferences of Chinese Internet users on video websites in recent years, this paper finds the importance of the future development direction of Bilibili. Combined with the background of the rise of the Metaverse, this paper sorted out. It classified the collected data analyzed the advantages and disadvantages of Bilibili in operation and user relationship maintenance by comparing the differences between Bilibili and other video websites. The research shows that its advantage lies in the strong user stickiness formed based on the unique interactive mode of the barrage. Strong vertical influence formed a solid creation ecology, good viewing experience, and personalized content recommendation for each user formed by non-insertion advertising. Its disadvantage is that the user group is relatively single, the quality of video production and users in the community declined, and there was less investment in technology. All these are the basis for this paper to point out the future development direction for Bilibili.

Based on the existing diversified bullet screen mode of Bilibili and the advantages and disadvantages, this paper points out the future development direction of Bilibili in Metaverse mode. The specific summary is as follows: Bilibili should improve and continue to develop users' favorite virtual idols; increase technological investment in blockchain technology, interactive technology, and artificial intelligence technology; enrich the user interaction elements in the platform and improve the auditor's treatment to improve audit efficiency. These development directions can not only ensure Bilibili's stable and efficient high-quality content output in the next few years but also enhance the

user's platform experience, improve the stickiness between users and the platform, and maintain the cultural atmosphere of the community, which is conducive to Bilibili's future strategic transformation.

4.2 Future studies

As a fast-growing diversified video platform, the financial reports in recent years of Bilibili have been unsatisfactory. In addition, there are some limitations in the Metaverse now, such as the lack of relevant laws and regulations to regulate the enterprise's business activities in the initial stage of development. However, Bilibili still has excellent development potential with China's largest creative user group. In this regard, Bilibili should prioritize the development of science and technology in the early stage of the Metaverse and improve the platform to provide an excellent creative environment for content creators. After the development of the Metaverse model is mature, Bilibili will gradually enter the platform, guarantee the experience of platform users, and lay a solid foundation for future development.

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