

Research on the Profit Model of Virtual Idols - Taking Bilibili as an Example

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Abstract. As a new product in today's economic environment, virtual idols have a significant role in driving the economic growth of the industry. However, although the virtual idol industry has produced considerable profits, the virtual idol industry is still in its formative years and there are many immaturities, and there is still much to explore in terms of the profitability of the virtual idol industry. The profitability model of its virtual idols in Bilibili has significant implications for the development of China's virtual idol industry. This paper firstly compares the development history of Bilibili's virtual idols. After that, we analyze the profit model of Bilibili virtual idols from five aspects. Finally, by pointing out the shortcomings of the development of the Bilibili virtual idol industry, the future development of China's virtual idol industry will be a prospect and relevant suggestions will be given.

Keywords: Profit Model, Virtual Idols, Bilibili.

1. Introduction

With the development and maturity of the Internet and ACG culture, virtual idols have emerged abroad as a new Internet character. Under the influence and intermingling of cultures, China also began to develop virtual idols with local cultural characteristics, such as Luo Tianyi and Yue Zhengling. After several years of development, the industry scale and profitability of domestic virtual idols have been expanding, generating the economic benefits of "Internet+IP" [1]. The commercial and cultural value of virtual idols continues to rise. The virtual idol industry has an important role in cultural dissemination and development, and can also be a driving force in the generation of new cultures [2]. In the future, the market of virtual idols will become increasingly hot and attract more and more fans.

The development of virtual idols naturally cannot be separated from the support of the companies behind them. In recent years, more and more netizens have started to participate in online video production. In this process, several video platforms with PUGC mode mainly for video production have gradually emerged in China [3]. Among them, Bilibili, the largest PUGC culture-focused video website in China, has a large ACG culture fan base and a strong cultural atmosphere, which is naturally suitable for the rooting and growth of virtual idols. Bilibili has also taken many measures to attract more virtual idols to reside in it. Virtual idols and Bilibili are mutually beneficial: Bilibili provides a platform for virtual idols' activities and marketing campaigns; at the same time, virtual idols also attract more traffic and revenue for Bilibili. Virtual idols are digital products of the Internet, which break the barrier of space and time and use related technologies for large-scale publicity and marketing to gain profits. According to the survey, 62.2% of the post-90s youth believe that the marketing activities of virtual idols enhance their desire to purchase promotional goods (data from 199IT data community website). The increasing revenue of virtual idols in recent years also proves its great commercial value [4]. More and more other industries are also collaborating with virtual idols to promote their services and products.

The characteristics of virtual idols make it a huge profit potential, so this paper takes this as the basis for an in-depth investigation of its profit model. Although huge profits have been made so far,

the profit model of virtual idols in China is not mature at present. The main profit areas of virtual idols are live Streaming, concert, advertising, and derivative products, after which they need to gradually penetrate other areas such as music, tourism, film and television, and even finance and education, to expand the followers. Taking Bilibili as a case study, this paper explores the profit object, profit point, profit source, profit leverage, and profit barrier of virtual idols as the main five profit models, and then explores the prospect of future virtual idol development and provides practical guidance strategies for virtual idol industry development. In this way, the competitiveness of industry-related enterprises in terms of service, technology, and resource integration is enhanced, which is of great significance to the future of the entire virtual idol industry.

2. Overview of virtual idols

2.1 Definition of virtual idols

BP neural network is a multi-layer network with error reverse propagation, which is composed of input layer nodes, hidden layer nodes and output layer nodes. This process has been reduced to an acceptable level of error in the network output, or to a predetermined number of learning times. The network structure is shown in Figure 1.

The virtual idol is a simulation idol designed and produced by using digital technologies such as voice synthesis, virtual reality, augmented reality, artificial intelligence, holographic projection, real-time transmission, etc., oriented to specific needs such as cultural development and commercial interests.

With the support of the technical team and the operation of the operation team, virtual idols can release albums, music videos, concerts, live streaming and many other performing activities online and offline like real idol artists, while also growing and living in the real world and establishing a unique emotional connection with fans. The virtual idols that have appeared so far can be roughly divided into four types: IP-derived idols, audio-tuned idols, actor-playing idols, and simulation-performing idols[5].

2.2 Development of virtual idols

The development of virtual idols can be roughly divided into four phases.

In the 1960s, American animator Ross Bagdasarian produced the hugely successful virtual band Alvin and the Chipmunks, which provided the prototype for the development of virtual idols. In the 1980s, Japan entered a new digital age, microcomputers continued to develop, and the number of "otaku" anime fans grew at an alarming rate. At that time, the heroine of the Japanese phenomenological animation "The Super Dimension Fortress Macross", Lynn Minmay - an idol singer - was the most popular anime character of the time. Later, the episode songs of "The Super Dimension Fortress Macross" were officially released under the name of Minmei Hayashi and made into an album that topped the Oricon music charts. The features of this period: avatars with scripts and producers, mainly anime as a vehicle, albums as the main mode of operation, and the proliferation of avatars into pop culture through TV's breakthrough pop songs as the initial marketing medium.

In the 1990s, the introduction of software such as photoshop provided the basic conditions for the development of virtual idols. And in 1996, the Japanese Horipro company launched the virtual idol Diki. The motion and figure innovatively used motion capture technology and were recorded by American dancers. However, due to various conditions at the time, production costs were very high, with one stage appearance costing tens of thousands of dollars. So despite Horipro's high hopes for Diki, it did not achieve commercial success at the time.

In 2000, the technology was upgraded again: with funding from Yamaha, Hideki Kenmochi, a researcher at the University of Pompeu Fabra in Spain, developed the voice synthesis software "Vocaloid". In 2007, the first phenomenal virtual idol, Hatsune Miku which was released by Japan's

CRYPTON FUTURE MEDIA, made its debut. The success was followed by the debut of the virtual idols of the same series, Kagamine Rin/Len and Black Rock Shooter [6].

Now, virtual netizen bloggers gradually emerged and expanded into the fashion world. Chinese virtual idol Hez makes his debut in variety entertainment “The Son of Tomorrow”. The K/DA girl group under League of Legends and A-SOUL under YUE HUA Entertainment are also hugely popular, and the virtual idol industry continues to grow and develop.

3. Profit model of virtual idols

3.1 The profit object of virtual idol

The profit object of virtual idols is mainly the ACG fans who like virtual characters and are willing to spend money for them. As the centralized platform of “Generation Z” culture, Bilibili naturally attracts a large number of ACG fans in China and has become the main activity platform for virtual idols. As shown in Figure 1, the scale of China’s ACG fans has been growing at a high rate since 2014, slowing down and leveling off in 2019. And the large number of profit objects for Bilibili has led to the presence and activities of virtual idols on Bilibili.

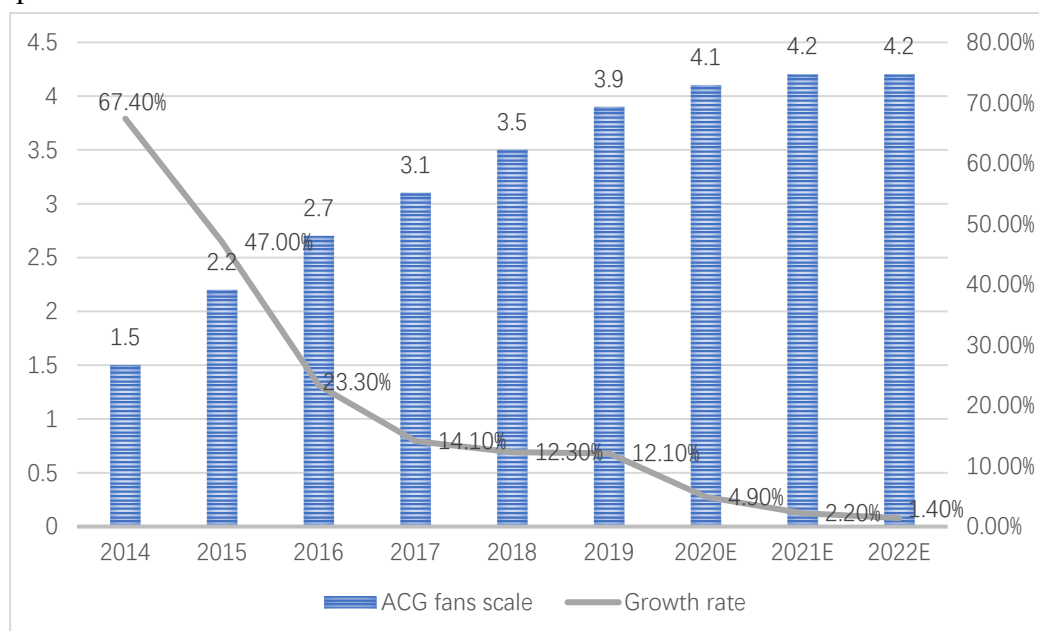


Figure 1. Scale and forecast of ACG fans in China, 2014-2022 (Data source: Avery Consulting, Southwest Securities)

Most of the users of Bilibili are Gen Z. The ability and willingness of Gen Z users to spend money online is higher than the average of overall users on the Internet. Young people are more willing to invest their income or disposable money in entertainment hobbies, and enjoying and paying for entertainment is an important part of their lives.

According to the survey, Chinese virtual idol lovers are mostly between 19-30 years old, with an equal proportion of men and women, and most of them are employees with middle to high income or rich in financial resources. As the age of Generation Z grows, this group with high acceptance of virtual idols will enter middle age and old age, so the age range of virtual idol audiences may be expanded in the future.

In addition to the viewers and fans of virtual idols, advertisers, IP licenses and external platform partners are also the profit object of virtual idols of Bilibili.

3.2 Profit points of virtual idols

The profit points of virtual idols refer to the value of products or services that idols can provide to customers, which is mainly expressed in the form of revenue from various business operations [7].

To expand the scope of profit points of virtual idols, Bilibili uses the “Virtual idol+” strategy to provide multiple services to its customers. The “Virtual idol+” model covers various industries, mainly divided into “Virtual idol+Concert”, “Virtual idol+Live streaming”, “Virtual idol+Advertising”, and “Virtual idol+Derivative products” and “Virtual idol+Game”.

(1) “Virtual idol + Concert”

“Virtual idol + Concert” can be divided into online and offline concerts, offline such as BML holographic projection concert, online such as Luo Tianyi 10th anniversary online birthday party. Offline concerts need to buy tickets to enter; online concerts are usually conducted in the form of live streaming, and fans can choose to bounty for idol support.

(2) “Virtual idol + Live Streaming”

As one of the communities with the strongest PUGC culture among Generation Z, the users of Bilibili is highly receptive to the live streaming of virtual characters. Bilibili has become the most popular platform for live streaming of virtual idols, where viewers can choose to “launch rockets” and “board ships”. VUP can still earn a lot of income in this way.

(3) “Virtual idol + Advertising”

To avoid the phenomenon of a “house crashed” of real spokespersons, more and more advertisers are choosing virtual idols to endorse their products. Even if they are not users of the product, fans of the virtual idol will still consider buying the product, which directly increases sales and new potential customers. This measure directly increases sales and new customers.

(4) “Virtual idols + Derivative products”

Bilibili launches copyrighted virtual idol-related products through membership purchases or flagship stores on e-commerce platforms, such as garage kits, cardboards, posters, dolls, as well as daily commodities such as umbrellas and hand-held electric fans.

(5) “Virtual Idol + Game”

Following the popularity of the ACG profile of virtual idols, many game companies have launched games where players can set their game appearance to achieve “DIY”. For example, NetEase online game “Treacherous Waters Online”, “Sword Heroes Fate”, and Perfect World Company’s “Tower of Fantasy”. “DIY” itself generally does not require payment, but the game will be used as a selling point to attract more potential users to download the game, and the customers who enjoy the game will also generate profits for the game by recharging.

3.3 Profit sources of virtual idols

(1) Copyright revenue. The copyright revenue of virtual idols accounts for 60% of the main profit source and is the most important source of revenue. The copyright income of virtual idols includes music rights, film and television works, derivative products, etc. There are various types of realizations. The companies that the copyright of virtual idols license the rights to other companies or platforms to obtain royalties.

(2) Platform entertainment or e-commerce live user bounty revenue. With the opening of a special virtual idol division on Bilibili, more and more virtual idols and VUPs are joining the live streaming. People who want to show their talents or interact with people but are unwilling to show their faces due to their less pretty appearance or other reasons can use the ACG profile to interact with people in this way. Live streaming is divided into entertainment live streaming and e-commerce live streaming, entertainment live streaming mainly through the audience to get profit, e-commerce live streaming will also be based on the sales of profit sharing in addition to playing the vote. As shown in Table 1, Bilibili VUPs’ revenue profits can exceed 500,000 RMB.

Table.1. Top 10 VUPs of monthly live revenue of Bilibili, January 2022 (Data source: Guohai Securities Research Institute)

Ranking	Virtual Uploader	Revenue(million RMB)	Number of fans (million)
1	Diana	73	163

2	Azi	66	51.9
3	Nana7mi	58	77.3
4	Eileen	57	66.4
5	iYushier	49	44.1
6	Kira	47	42.1
7	Ranoca	47	0.9
8	Asa Aza	39	56.8
9	Zi Jin	36	5.9
10	Flower Haya	30	31.5

(3) Revenue from offline activities. Virtual idol offline activities take a variety of forms, including hologram projection concerts, Anime Exhibition, linked restaurants, and other avenues. The offline activities are usually provided by the partners, and fans are welcome to visit the venues and spend money.

(4) Endorsement and advertising income. With the development of virtual idols, more product advertisers are choosing virtual idols as product spokespersons. Some products use their mascots or virtual idols to endorse their products, such as the beauty make-up brand “Florasis” which has created a virtual idol “Florasis” as its brand spokesperson. Many products choose to contract with popular virtual idols for endorsement, such as YUE HUA Entertainment’s girl group A-SOUL endorses L’Oreal for men, and Luo Tianyi endorses KFC.

3.4 Profit leverage of virtual idols

Profit leverage refers to a series of activities that are used to attract consumers. It is a kind of input of a company and focuses on which activities can provide value [8]. The key to leverage is to do the complicated work by simple and fast methods, combining the profit object and the profit point, and using different “leverage” means to obtain the maximum profit [9]. It has been six years since the development of virtual idols on Bilibili. Through the continuous development of Bilibili, it has formed its unique business structure. The profit leverage of VUP on Bilibili is reflected in two areas, namely:

(1) Promotion of platform activities. As the largest gathering place for ACG fans in China, Bilibili has its unique advantage in the promotion of the platform.

As early as January 2021, Bilibili Live launched a virtual cabaret program called “Vox Ultima”. This two-hour-long concert featured not real people but the most popular VUPs on Bilibili. Many VUPs represented by Lingyuan yousa, Lunai, and Xinkeniang strung together 10 themed scenes such as snowy plains, deep sea, forests, and Cyber City, staging an immersive song and dance feast for the public. On August 28, 2021, Bilibili held an online virtual concert called “Summer Chorus Pro Max”, which is performed by several virtual idols. The peak popularity of this event is more than 6 million, and have almost always occupied the top of the Bilibili live popularity list for two hours.

In addition, on February 16, 2022, Bilibili officially launched the “Virtual Anchor” live partition, and added the “VUP” sub-tab in the live entertainment partition. Uploaders can choose to open live in the “virtually live” column. This initiative provides a platform for independent VUPs to broadcast live. According to media statistics, the current number of virtual anchors has exceeded 30,000. In the recommended partition of Bilibili live, the virtual anchor partition has also been in the front. As the first domestic live platform to set up a virtual anchor partition, Bilibili has become the largest live platform for virtual anchors in China. Relying on the emerging domestic virtual uploader market, Bilibili has established its position in the field of live virtual idols. Some overseas virtual idols are also choosing to come to Bilibili for live streaming.

On July 12, 2022, the top virtual idol Luo Tianyi's 10th birthday party live event has also been promoted in Bilibili to warm up.

(2) Support of the platform industry chain. Based on its past achievements, Bilibili provides a more complete industry chain to support the profit of virtual idols. In terms of online activities, Bilibili relies on its platform to carry out live activities and variety shows. Furthermore virtual idols are also featured in large-scale events such as Bilibili's New Year's Eve Party. For instance, A-SOUL performed "New Year's Eve" this year and received strong reactions.

In terms of offline activities, the companies to which the virtual idols belong and Bilibili jointly hold concerts and other activities. Virtual idols also perform in its Bilibili World offline activities. Through Bilibili's splash ads, page promotion and other ways, VUPs can promote their events.

In terms of the purchase of derivative products, Bilibili membership purchase provides a ready platform for the sale of virtual idols' derivative products, extending the industry chain of virtual idols' profitability.

3.5 Profit Barrier of Virtual Idols

The profit barrier is a series of precautionary measures taken by enterprises to prevent other enterprises from plundering their profits and to ensure their sustainable profits[10]. And in the development of the profitability of virtual idols, Bilibili has made full use of its favorable conditions such as early development, high overlap rate of user groups, high technology level and perfect platform construction to become its unique profit barrier.

4. Conclusion

The virtual idol economy is currently in a booming stage of development, and many profit models are being explored and tested. Through the analysis, we found that Bilibili's virtual idol profit model is very advantageous in this field. For example, the profit object has a high overlap with the original user base of the platform, and it has innovative and diverse profit points. These have strong implications for the future development of the virtual idol industry.

However, the study also found that there is room for improvement in the profitability of Bilibili's virtual idol profit model. For example, the scope of virtual idol objects is limited, and the problem of breaking the circle has entered a bottleneck; the Internet network environment is complicated, and it is difficult to regulate public opinion.

Based on the analysis, we find that there are problems in the development of Bilibili virtual idols such as those mentioned above, and make the following suggestions. Companies should raise risk awareness, implement supervision of profitable partners and processes, and set PR plans for possible problems. Strengthen market research, increase understanding of existing customer consumption needs, and use big data to screen usage information. At the same time, strengthen online and offline market publicity, strive to break the circle and improve exposure.

Virtual tour guides not only have knowledge reserve greater than the real tour guide, but also can reduce the epidemic conditions due to the tour guide's multiple rounds of guiding tourists triggered by cross-time infection. In addition, the image of a virtual tour guide can also better meet the needs of different tourists. For example, in venues such as history museums, companies can use virtual idols, like the rabbit image in the animation "Year Have Affair", as a guide, to provide children with introduction services. This can convey patriotic feelings more simply and clearly. Develop unique companion virtual idols for the elderly, teenagers, and autistic people to increase the scale of profit objects. It can also improve the social responsibility of virtual idol companies.

At present, there are already video submissions of virtual AI teachers' classes created by Xmov Magic Enamel Technology in Bilibili. Compared to real teachers, virtual teachers can provide more standard course content and promote educational equity. At the same time, virtual teachers can be promoted in some areas such as psychological education, making it possible for students to enjoy a high-quality learning experience in areas where education resources are relatively scarce.

Combine virtual idols with practice systems. For example, adding a virtual idol program to the fitness mirror. In this way, users can choose their favorite virtual idol to accompany the exercise (similar to the Gaode Map voice package).

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